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ABSTRACT

When Congress created the National Aeronautics and Space Administration (NASA) 25 years ago, it directed that information derived from the agency's pursuit of knowledge through space exploration and aeronautical research be made available to all Americans. This has been accomplished through a series of scientific and technical publications. One series, NASA Special Publications, includes mission reports, aerodynamic treatises, structural analyses, planetary atlases, conference proceedings, extensive reference materials, and other material whose scope and significance outgrew the bounds of customary research reports and journal articles. This document provides lists of all Special Publications that NASA has published since the series began in 1961. Entries are presented under the followng categories: general publications; handbooks and data compilations; technology utilization; management evaluation and analysis standards; bibliographies; space vehicle design criteria; specifications; reference publications; and conference publications. Each entry includes title, author(s), publication date and number, number of pages, original sales source, and (when appropriate) a brief annotation. Entries are also listed by document number in a subject index. Subject index categories include: aeronautics; astronautics; chemistry and materials; engineering; geosciences; life sciences; mathematical and computer sciences; physics; social sciences; and space sciences. (JN)

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RECORDS OF ACHIEVEMENT

NASA Special Publications

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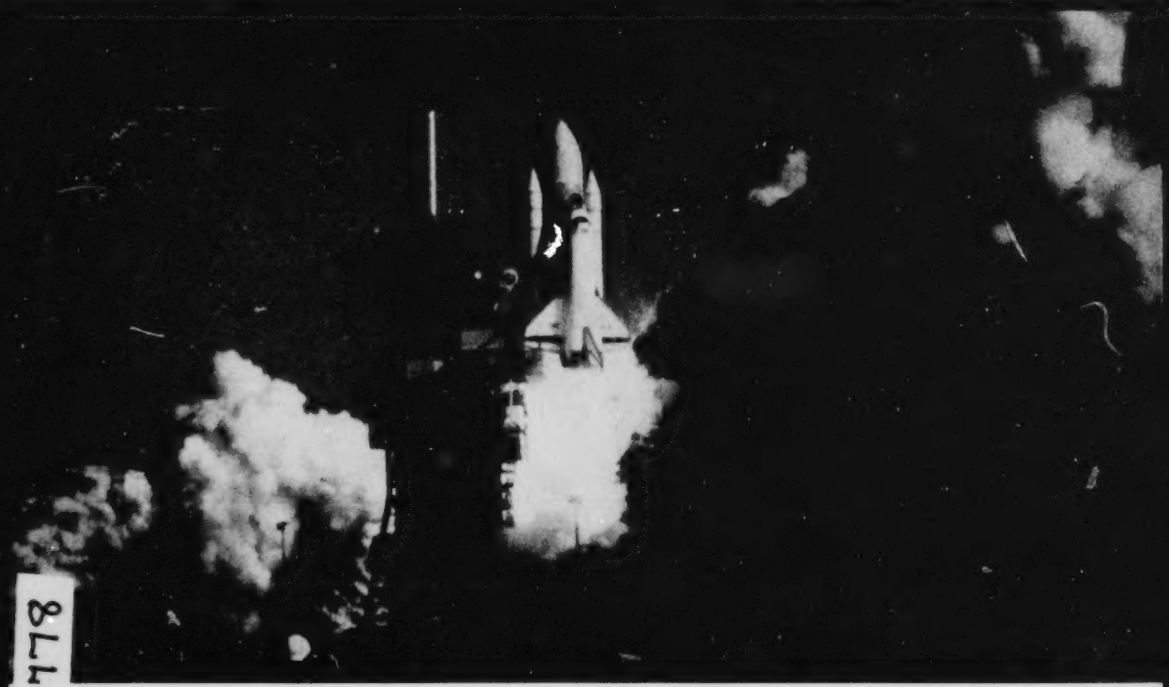

SE043 778

25th Anniversary
1958-1983

National Aeronautics and Space Administration

RECORDS OF ACHIEVEMENT

NASA Special Publications

NASA Scientific and Technical Information Branch 1983
National Aeronautics and Space Administration
Washington, DC

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Foreword

When Congress created NASA 25 years ago, it directed that the information derived from the agency's pursuit of knowledge through space exploration and aeronautical research be made available to all Americans.

One way of making these research results available has been through a series of scientific and technical publications. One series, purposely labeled "special," presents material whose scope and significance simply outgrew the bounds of customary research reports and journal articles. In fact, some of the more prestigious Special Publications have exceeded the bounds of pure science and engineering, satisfying as well the interests of a more general audience.

The Special Publications produced by NASA since the early 1960's have enjoyed world-wide recognition. They report on the research and development in communications, energy, materials processing, planetology, and astronomy, as well as in aeronautics and aerospace. Many of these publications possess uncommon values that will endure for decades to come. It is appropriate to list them now as a convenient reference of past accomplishments on the occasion of NASA's twenty-fifth anniversary.

James W. Beggs, Administrator

National Aeronautics and Space Administration

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Preface

The purpose of this booklet is to list all the Special Publications that NASA has published since the series began in 1961. The series has included some of NASA's most ambitious scientific and technical books, and includes a broad range of topics that covers NASA's work in research and development. Since this edition of the list will be published during NASA's twenty-fifth anniversary, a special section has been included which relates the Special Publications series to some of NASA's achievements.

Special Publications were created as NASA began to produce information in a format that did not quite fit the pattern of technical reports. NASA had caught the public's attention with its beginning steps in space exploration, and needed a vehicle that presented a total picture to those outside particular areas of expertise. There were many subjects that an increasingly educated public wanted to know about. They found a niche in the Special Publications series.

The Special Publications series bloomed with mission reports, aerodynamic treatises, structural analyses, planetary atlases, conference proceedings, and extensive reference material. By the midseventies, it became obvious that the latter two needed separate series, and so Conference Publications and Reference Publications were created. All are listed here.

When particular books were being created, it was obvious that they would be best sellers. Sure enough, *Exploring Space with a Camera*, which gave the public an early look at the Earth photographed from space, sold 124,000 copies before it was allowed to go out of print. Photographic techniques were improving, and the images in later books were far better. Along came *This Island Earth*; it is 12 years old and is still selling well (71,000 copies). *Apollo Expeditions To The Moon* has sold 46,000 copies. Still moving quickly off the bookstore shelves are *Mission to Earth: Landsat Views the World*, the *Skylab* series, *The Martian Landscape*, *Voyage to Jupiter*, and *Voyages to Saturn*. There were some surprises, however; who would have forseen the success of such unassuming titles as *Clarity in Technical Reporting* or *Soldering Electrical Connections*?

Although the books with space imagery sell best, other Special Publications are of wide interest for either the scientist or the educated public, and these are also printed and sold through the Government Printing Office. Some of the technical subjects are presented with the layperson in mind, while others are deemed classics for reference in particular disciplines. Still others, just as important, but not generating interest outside a narrow area of expertise, are printed and made available from the National Technical Information Service. Photocopies of books no longer available through GPO are also available at NTIS.

In the list of publications that follows, a brief description is given together with the original sales source and the publication date. The prices are not listed because they change. Phone or write GPO or NTIS for prices of publications that interest you. GPO will want to know the NASA SP number; NTIS will want to know the seven-digit NASA accession number. When you find an attractive title, take care to notice the date of publication. Many books are out of date, and are of historical value only. For example some books on Mars predate the 1976 Viking mission.

This account of the growth of Special Publications does not tell of the work and worry that go into the research, writing, and production of books. But as you look through the list and find titles that interest you, think of the curiosity and diligence that result in advances in science and technology and the subsequent effort and care that produce the record.

Kay E. Voglewede
Scientific and Technical Information Branch

Addresses for ordering publications

GPO:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

(202) 783-3238 or (202) 783-3238 Price information; orders

NTIS:

National Technical Information Service
5285 Port Royal Rd.
Springfield, VA 22161

(703) 487-4780 Information or document accession number
(703) 487-4650 Sales Desk; price information
(703) 487-4630 Subscription information for bibliographies (SP-7000 series)

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Barrows Hall
University of Georgia
Athens, GA 30601

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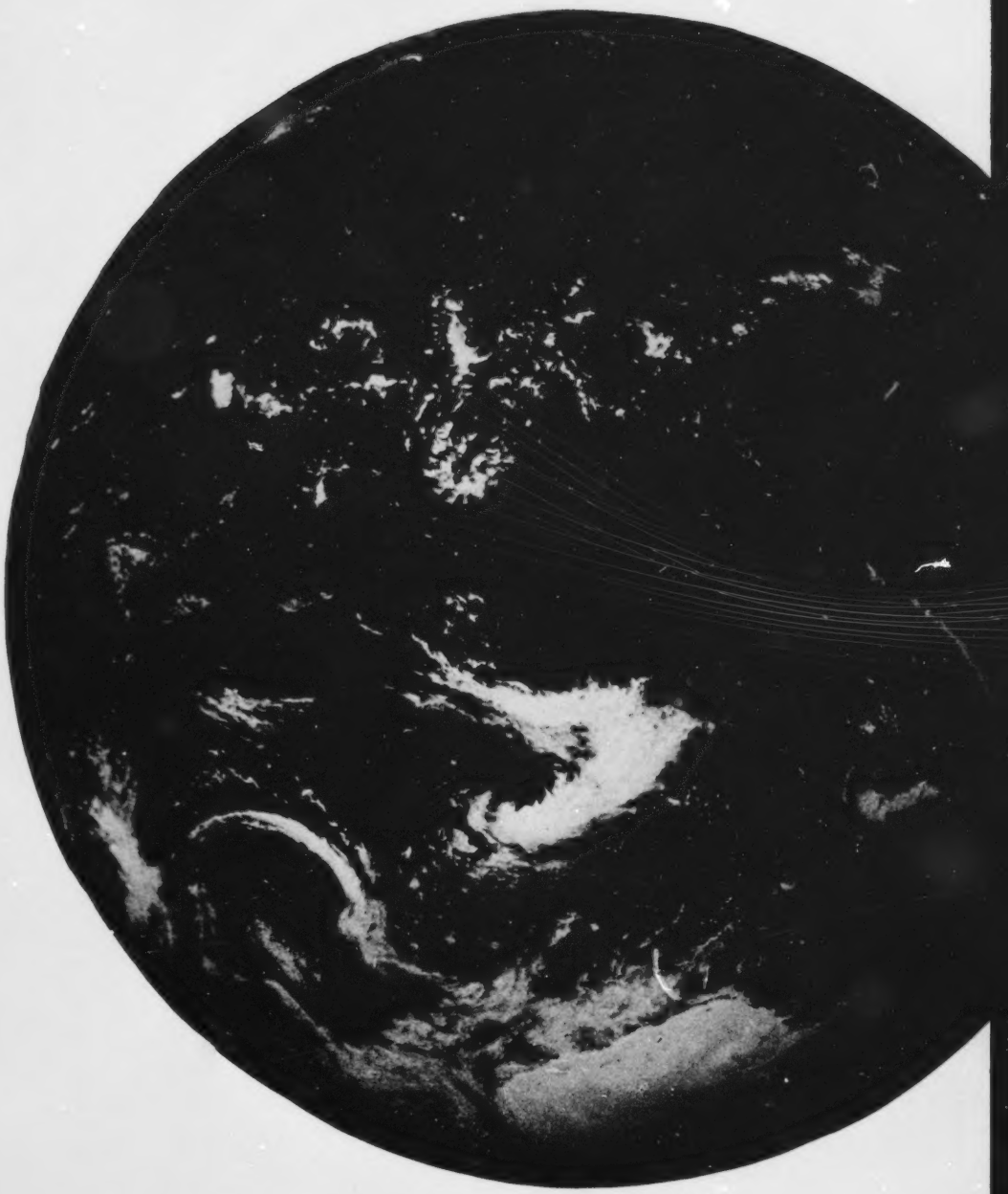

View of Earth from the Moon

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NASA: 1958–1983

Since this edition of the Special Publications catalog is being published during NASA's twenty-fifth anniversary, we are using the occasion to include a short narrative of some of NASA's achievements.

Pioneer VIII

It was 2:55 a.m., October 11, 1958. The 88-foot-tall Thor rocket, a giant for its time but to be dwarfed by rockets not yet even planned, glowed in searchlight brilliance. Battens of fog crawled around its base.

At its top nestled Pioneer 1, an 84-pound satellite crammed with all the radios and instruments its small size could hold. The mission: Escape the inexorable pull of Earth's gravity to fly past the moon and photograph its mysterious backside. A tinny voice crackled over loudspeakers.

"...3, 2, 1, Liftoff!"

Thor roared into the black sky just before 5 a.m., lighting the Florida coastline with its pillar of fire. The launch crew cheered at what looked like a spectacular first-time success.

For the fledgling National Aeronautics and Space Administration, brought into being just 11 days earlier, the sight of the 50-ton Thor disappearing toward the inky dark of space was soul-stirring. And it was a critical first step for the new agency on the road to space exploration.

The bad news came 16 hours later. Thor's engines had not delivered full power. Pioneer 1

climbed to 71,000 miles, then fell back toward Earth. It would have been first to the Moon. Even so, NASA's inaugural flight was far from being a failure. No other satellite had ventured so far from Earth. Pioneer's instruments radioed back the first radiation measurements from trans-lunar space. The flight blazed the way for later communications satellites by relaying radio messages between continents. In a single mission, NASA had boldly advanced along the learning curve that would lead to U.S. dominance in space.

"... 3, 2, 1, Liftoff! We have a liftoff!"

The words echo through the years. Liftoff. That ultimate moment of truth, accompanied by the familiar fire and roar of rocket engines and the hopes of a nation embarked on the exploration and use of outer space, has come hundreds of times since the Space Age dawned. It has marked the separation point in mission after mission, sending human and machine alike beyond the limits of the home planet.

The space accomplishments of a quarter century are stunning. Instrument-laden spacecraft have visited the six closest planets. Men have walked on the Moon, returning pieces of it to Earth for scientific study. Scores of satellites circle the globe, serving humanity in ways that now are routine, or revealing new knowledge about the cosmos and our own planet through cameras and sensors. More important, men and women are carried routinely into orbit aboard a reusable space ship, exploiting the unique weightless environment for the benefit of all.

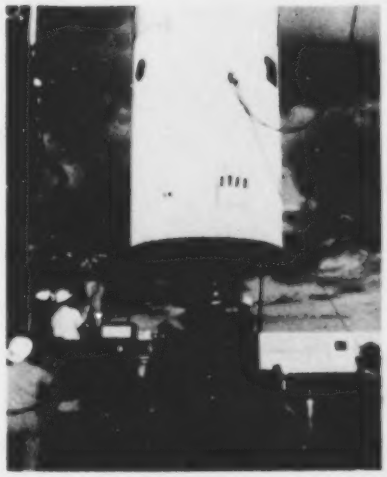
Yet just 25 years ago, it seemed all a dream.

In late July 1958, nearly 10 months after the Soviet Union stunned the world by orbiting Sputnik 1, the first manmade satellite, and six months after the United States joined the rush to space by rocketing Explorer 1 into orbit, President Dwight D. Eisenhower put his signature to Public Law 85-568, the National Aeronautics and Space Act of 1958. It was the end to months of national debate over how the United States should meet the scientific and technical challenge of exploring outer space. And it was a beginning.

The Space Act created the National Aeronautics and Space Administration on October 1, 1958. The new agency incorporated the aeronautical research activities of the National Advisory Committee on Aeronautics (NACA), and shouldered the full burden of non-military research, exploration, and conquest of space. In its first 25 years, marked by the early frustrations of failure and the later exhilaration of success, NASA carried out an incredible series of projects that opened the solar system for humankind.

The complete histories of many of those projects are told in a variety of NASA publications, including several full-length books. These Special Publications (SPs) are available from the U.S. Government Printing Office book stores and in many libraries. (See the Preface for further information.) Other series mentioned here are Reference Publications (RPs) and Conference Publications (CPs). Two publications provide excellent overviews of the move from one small planet into the realm of space. *This Island Earth* (NASA SP-250) looks at the initial impact of space travel and *Beyond the Atmosphere* (NASA SP-4211) chronicles the early years of space science.

Pioneer IV



In the beginning, it was enough to send a small satellite, carrying just a few instruments, into the weightless vacuum above. But the complexity of rockets, even in 1958, left little margin for error. With that burden, the young NASA immediately assumed responsibility for its first launch, taking over Thor and Pioneer from their Air Force developers.

From that beginning, NASA coordinated its ventures into the new frontier. Some spacecraft would orbit the Earth. Others would explore the Moon and the planets. And in the most publicized effort of all, ships and rockets would carry man into space. Each piece of the overall program was separate; yet each fed new knowledge into the other and each learned from the other's successes and failures.

NASA quickly took control of a network of former NACA research facilities — Langley in Virginia, Ames in California, Lewis in Ohio — that would move to the forefront in research and planetary satellite technology. Contract work with California's Jet Propulsion Laboratory expanded. NASA acquired a site in Maryland for communications and data processing, tracking, and satellite development: the Goddard Space Flight Center. Much of the Army's Redstone Arsenal in Alabama

became the Marshall Space Flight Center, concentrating on rocketry. Facilities now called Dryden in California and Wallops in Virginia were also included under NASA. At Cape Canaveral, NASA used Air Force facilities until it could build a launch complex that would become the Kennedy Space Center. And it built a new Manned Spacecraft Center (now Johnson Space Center) near Houston.

Even as NASA was being organized, teams were developing a plan to put one man alone into a tiny, bell-shaped spacecraft and orbit him around the Earth. This was Project Mercury, and for the times, it was at once courageous, ambitious, confident, and frightening.

In 1959, after an exhaustive search, NASA selected seven military test pilots to become space travelers for Project Mercury. They became known as the Original Seven: Scott Carpenter, Gordon Cooper, John Glenn, Virgil Grissom, Alan Shepard, Walter Schirra, and Donald Slayton. Because no one knew what rigors or dangers a human being would face from zero gravity, radiation, or the still-unknown secrets of orbital flight, their training was intense. At the same time, the Mercury spacecraft was developed. For early flight tests NASA selected the small Redstone rocket, and decided that the primary rocket for orbital flights would be the Atlas missile.

By early 1961, chimpanzees had flown in place of astronauts to verify that the Mercury spacecraft worked as planned. But the crucial decision to fly a man was still debated. It was left to President John Kennedy to weigh the risks. As arguments raged, the Soviet Union did it again; an unknown cosmonaut named Yuri Gargarin was rocketed aloft, orbited the Earth a single time, and returned to a hero's welcome. Within a week, Kennedy called a White House meeting and heard the arguments one last time. Then he nodded approval.

On May 5, 1961, Alan Shepard was secured into the cramped spacecraft, Freedom 7. The small Redstone rocket ignited and he was hurled aloft on a

Saturn

15-minute suborbital test flight over the Atlantic Ocean. Shepard cruised through the edge of space and splashed down safely in the Atlantic Ocean. It was a brief flight, but it paved the way for others and it gave America its first man in space.

Almost before Shepard could dry off, NASA leaders were drafting a 30-page document for President Kennedy. It urged a bold stroke in space to help propel American technology forward on many fronts. On May 25, 1961, Kennedy stood before a joint session of Congress to recommend the most dramatic project yet undertaken by humankind.

"I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to the Earth," Kennedy told the startled Congress.

But first there was Project Mercury to complete. John Glenn entered the history books by orbiting the Earth three times in his *Friendship 7* in February 1962. In the next 15 months, the other astronauts followed, except Slayton, who was grounded because of a heart murmur. Each flight advanced NASA's knowledge of the space environment and taught us how better to survive in orbit. The final mission, with Gordon Cooper aboard, lasted a then-incredible 34 hours and 20 minutes — 22 times around the world!

For an inside view of America's first triumphant space program, see *This New Ocean* (NASA

SP–4201), a thorough and engaging history of Project Mercury. The ocean of the void was giving up its secrets. America was in space to stay.

By now, the Moon program had a name: Apollo. But it would be years before the goal could be attempted. With talented teams of industry contractors and growing numbers of NASA personnel aiming for the Moon, another effort was needed. NASA proposed a two-man spacecraft to orbit the Earth. It would perform extended missions, prove out the techniques of maneuvering in space and rendezvousing with another craft, and test the endurance of men against the still undefined hazards of space travel. With President Lyndon Johnson's full backing, Congress approved the Gemini Program.

It was a success. During a period of 16 months NASA used the larger Titan rocket to hurl a dozen Gemini craft into space. Ten spacecraft carried two-man astronaut crews, and their exploits left the world enthralled. On Gemini 4, Edward White walked in space. Gemini 6 and 7 flew the first space rendezvous, and Gemini 7 spent almost 14 days in orbit. Geminis 8 through 12 rendezvoused and docked with target vehicles launched earlier. The photos these astronauts brought home showed a gleaming and beautiful Earth, and revealed terrain features not seen before. Many can be seen in *Earth Photographs From Gemini III, IV, and V* (NASA SP–129), and the Gemini story is covered in *On the Shoulders of Titans* (NASA SP–4203).

As Gemini began, flew, and ended, the Apollo Program also moved steadily ahead. The Moon would be challenged with two spacecraft, a command module carrying three astronauts, two of whom would land on the Moon in a lunar module. They would return to rendezvous in lunar orbit with the waiting third crewman. But first, a series of test flights in Earth orbit were planned.

Then tragedy struck. During a launch pad test in January 1967, fire destroyed the Apollo 1 spacecraft and asphyxiated astronauts Virgil Grissom, Edward White, and Roger Chaffee. In the months that followed, Apollo underwent intense scrutiny and modification. The spacecraft was totally fireproofed and the lessons of flammability have since been applied in a wide variety of other fields.

In the meantime, NASA completed construction of its launching facility in Florida. (*Moonport* (NASA SP–4202) tells the story of how this massive job was carried out.)

But without giant rockets, Apollo could not succeed. Through the mid-sixties, Marshall Space Flight Center designed and tested the Saturn rockets that would send Apollo to the Moon. When the first Saturn V rocket — the largest in the world — was launched with an unmanned payload, the ground shook three miles away. So great was the power of this enormous rocket that watchers felt it rumble through their feet before they heard its crackling roar. Developed under the leadership of Wernher von Braun, the rocket performed flawlessly. It was November 9, 1967. How this launch vehicle, with 8.9 million pounds of thrust, was conceived and built is told in *Stages of Saturn* (NASA SP–4206).

In Autumn 1968, the Apollo 7 mission tested the command module with a three-man crew in Earth orbit. Then in December, in a daring mission to put Americans first around the Moon, Apollo 8 crossed the long miles toward Earth's nearest

neighbor. Looking back, astronauts first saw and photographed the Earth as a gleaming blue and white globe against the blackness of space. The photos they returned changed our view of the Earth: we realized it is delicate. On Christmas Eve, Apollo 8 disappeared behind the Moon and the world waited tensely.

"Houston, be advised. There is a Santa Claus!" The words came from Astronaut James Lovell as Apollo 8 climbed above the lunar horizon and re-established contact with Earth. For the first time, representatives of the human race were orbiting the Moon.

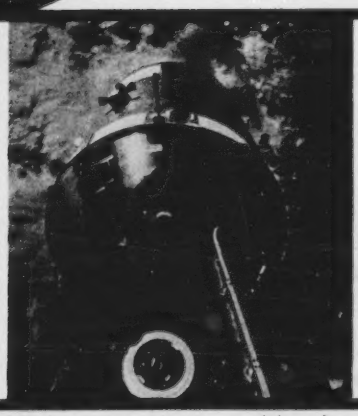
Less than seven months later, other immortal words came from the Moon. It was Neil Armstrong who radioed, "Houston, Tranquility Base here. The Eagle has landed!" The lunar module Eagle was safely on the Moon in the Sea of Tranquility. And when Armstrong stepped out of his craft, the world heard the first words from a person standing on another planetary body: "That's one small step for a man, one giant leap for mankind."

The Apollo goal was achieved on July 20, 1969. A few days later, Apollo 11 splashed down in the Pacific Ocean and the challenge was fully realized. The astronauts had returned safely to Earth.

They brought with them a treasure of lunar geology samples. In the next two-and-a-half years, five more astronaut teams landed on the Moon. They left scientific stations to radio new knowledge about the Moon, and they brought hundreds of pounds of samples home for study. The contributions to science by the Apollo program are beyond measure. The *Preliminary Science Reports* of the six Apollo missions that landed on the Moon are sprinkled through the Special Publications series. And the exciting photographic story of the lunar conquest can be seen in *Apollo Expeditions to the Moon* (NASA SP-350).

Because the hectic pace of Mercury, Gemini and Apollo could not continue, the groundwork

Chimpanzee ready for Mercury Redstone 2 flight



Apollo 9 command service module and lunar module Spider

Successful splashdown

was being laid for a reusable Space Shuttle. It would take a decade to bring such a complex ship to operational status.

Three Skylab missions kept astronaut crews in an orbiting space laboratory for prolonged flights in 1973 and 1974. In these missions, NASA demonstrated that humans could survive and lead active, healthy, and useful lives during prolonged space flight. The science results of Skylab surpassed all expectations. Using a special solar telescope, astronauts studied the Sun and recorded vital new data about its activity and how it affects Earth. They used a sophisticated camera and other sensors to study Earth itself, making new discoveries in geology, hydrology, weather patterns, and more. *Skylab, Our First Station in Space* (NASA SP–400) describes the program and tells much about life in orbit around the Earth. *A New Sun* (NASA SP–401) reports Skylab's solar findings and provides spectacular photography. Other volumes deal with Skylab contributions to astronomy, Earth sciences, and biomedicine.

The final manned mission of the Seventies joined the United States and the Soviet Union in international cooperation. ASTP — the Apollo-Soyuz Test Project — was the result of delicate negotia-

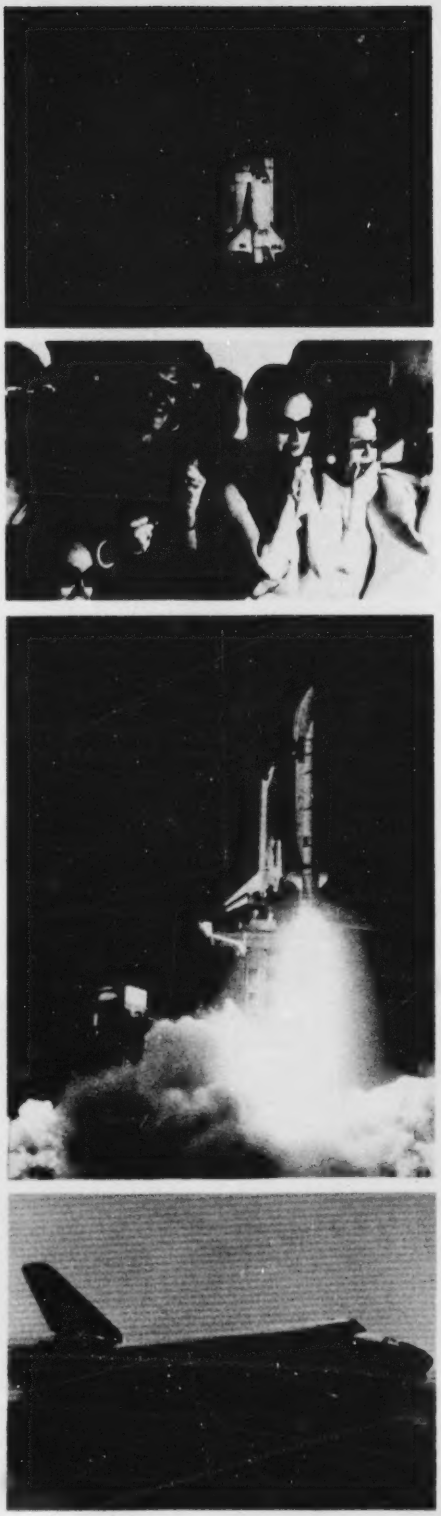
tions and years of preparation. Astronauts flying an Apollo command module joined up with cosmonauts in a Soyuz craft not only to meet in space, but to work together. Among the Americans was Donald Slayton, his heart murmur gone and at last able to join his fellows in outer space. This mission is the subject of *The Partnership* (NASA SP–4209), an account of the triumph of human endeavor beyond the edge of the Earth. In another joint effort, the two countries collaborated on a three-volume study of space medicine, published as *Foundations of Space Biology and Medicine* (NASA SP–374).

As complex and sophisticated spacecraft extended our knowledge of the solar system, NASA pressed forward with development of the Space Transportation System and its focal point, the Space Shuttle. The Shuttle endured a series of technical delays as unforeseen problems were resolved before flying into orbit in 1981. By the end of 1982, the Shuttle was declared operational and a new era of space flight, with men and women routinely going into orbit, began. *The Shuttle at Work* (NASA SP–432) tells the preliminary story of this craft and outlines its missions for the coming decade.

While astronauts explored the space close to Earth and walked on the Moon, other NASA ships trekked among the planets. The first steps took automated spacecraft to the Moon. NASA and industry experts used the Ranger program in the early and mid-sixties to solve the difficult engineering and navigational problems of reaching a distant body. One after another, camera-carrying Rangers plunged toward the lunar surface, radioing startling closeup photographs of the plains and craters before impacting. Then in a crucial precursor to sending men to the Moon, Surveyor craft landed there gently, proving that the lunar terrain was solid and stable. As NASA grew more experienced and confident, the planets themselves beckoned and the exploration became more complex and bold.

An unbroken series of successes put Pioneer spacecraft managed by Ames Research Center into far-distant space where they studied the Sun, the solar winds, and radiomagnetic phenomena. Mariner spacecraft designed and built at the Jet Propulsion Laboratory flew past Venus and Mercury, offering an excited world closeup views of the innermost planets. Other Mariners crossed to Mars, precisely fired their engines, and went into orbit.

The lure of Mars captured public and scientific attention. In twin missions, each having an orbiter and a lander, Viking spacecraft were precisely navigated to Mars. The first of them landed on July 20, 1976 — just weeks after America's 200th birthday. As word reached JPL that the Viking 1 Lander was safely down (and the Orbiter operating from



The Space Shuttle

above), emotions erupted and scientists, news people, and hundreds of watchers burst into long, loud cheers. Even veteran space reporters wiped away tears.

From widely separate landing zones, the two Viking Landers provided earthlings with their first on-the-ground look at our neighbor. Cameras showed a rock-strewn terrain, rusty red just as it should be, and a pinkish sky. Samples of martian soil were quickly scooped up and analyzed. In one small part of Viking Lander, a one-cubic foot unit analyzed the soil for signs of life. That little package — a marvel of engineering that contained miniaturized instruments that would fill a laboratory on Earth — may be the most sophisticated piece of scientific gear yet devised. But it found no life.

Still, Viking offered an exhaustive look at Mars, rewriting the science books with its findings. *The Martian Landscape* (NASA SP–425) contains a superb account of the Viking mission and hundreds of photos. And from Mars, data continued to flow toward Earth from two Viking Orbiters and two Viking Landers until the last of the four quit in late 1982.

More than two years before Viking reached Mars, two Pioneer spacecraft, launched a year apart, flew past Jupiter. Again the yield of these scientific explorers was astonishing. Color images of Jupiter appeared on control room screens, showing roiling bands of multi-colored clouds and strange spots and swirls racing through the jovian atmosphere. The Great Red Spot appeared and scientists at last had a closeup look at this curious and unique phenomenon.

Again, astronomers were obliged to rewrite the texts. As they studied the Pioneer data radioed from Jupiter, the spacecraft continued to chatter their messages of scientific discovery. Pioneer 10, passing Jupiter in late 1973, continued outbound toward the stars to leave the solar system in June 1983. Pioneer 11 had a different mission. Leaving Jupiter behind in December 1974, it began a five-year journey to its next goal: Saturn!

Pioneer 11 entered the saturnian system in early September 1979. In another of the seemingly unending string of "firsts," the spacecraft's imaging system gave Earth a closeup look at Saturn's fabled rings and its banded cloud patterns. Observers quickly saw that a never-before-seen ring — the F Ring — girdled Saturn, and that its broader rings actually had many components. Perhaps most important, Pioneer 11 crossed through the ring plane, not once, but twice. Indeed, a ship could survive that journey without destruction by high-velocity dust particles or chunks of ice or rock, even though Pioneer barely missed one of Saturn's moons during the crossing.

The travels of the two Pioneers to the largest of the outer planets brought new understanding of how the solar system is formed. Scenes impossible to view through terrestrial telescopes leaped onto screens with clarity. Instruments recorded new data on interplanetary magnetic forces, radiation, and even weather. For a detailed look at the color and drama of the first visit to Jupiter and Saturn, see *Pioneer: First to Jupiter, Saturn, and Beyond* (NASA SP–446).

Planetary exploration indeed came into full flower in the most recent years. Still another pair of Pioneer-class spacecraft headed for Venus. One ship launched probes that descended to the inferno of the Venusian surface. Thought by early scholars to be a watery planet, Venus was fully revealed to be a parched furnace, its landscape dry and hot beneath the crushing weight of an atmosphere more than 90 times as dense as Earth's. The first craft still orbits Venus, where its instruments continue to study the surface below. Among the significant findings that Pioneer radioed back to Earth are data about the greenhouse effect that traps heat within a planet's atmosphere. That information may have vital significance for the future of Earth itself. The Venus

missions are detailed in *Pioneer Venus* (NASA SP–461).

As the histories of the planets are written, no missions have greater fascination than Voyager — two advanced and multi-talented ships that cruised the lanes of space to Jupiter, and then to Saturn. Their discoveries left scientists breathless. With their high-resolution cameras and other instruments, Voyager ships looked closely at far-away moons. They photographed volcanoes spewing sulfurous vapor on Io, saw cracked-ice seas on Callisto, and studied the opaque haze and clouds of Titan. They found a hitherto unsuspected ring around Jupiter and revealed that Saturn's rings are not a few, but thousands of glimmering bands composed of icy chunks and embedded moonlets.

Voyager 2 sails onward to view yet another planet, Uranus, in 1986. And a final leg to Neptune, to be reached in 1989, is a strong possibility.

The Voyager journeys past Jupiter and Saturn are chronicled in NASA SP–439 and SP–451.

So much has been accomplished in just 25 years. The sheer spectacle of humans in space and the splendor of discoveries on other worlds might have been enough. Though such missions received overwhelming public attention, NASA made equally important strides in practical, scientific, and observatory spacecraft that remained in Earth-orbit.

The agency developed the technology for communications and weather satellites that are now commonplace in our daily lives. Dozens were launched as inventive NASA and industry designers improved their art and gave the world new and important benefits. And when the lessons were learned and the technology secure, NASA turned over the future to other agencies and to private industry. Communications satellites alone represent a multi-billion-dollar business today that began with NASA's pioneering thrusts.

The Earth itself has yielded secrets to NASA spacecraft. Landsats turned their sensitive cameras and instruments groundward to reveal mineral deposits, track the growth of crops and forest, monitor snowfall and water resources, and much more. With its multispectral cameras, details emerge that could not be seen with the naked eye. *Mission to Earth: Landsat Views the World* (NASA SP–360) contains hundreds of photographs that proved invaluable — just a sampling of the imagery that has aided in discovering more about our own world and in managing our resources.

Other craft provided new knowledge for all the sciences. Solar observatories studied the Sun. Astronomical observatories scanned the heavens. Instrument-laden ships aimed their sensors at our atmosphere and the near-space regions. The High-Energy Astronomical Observatory (HEAO) spacecraft brought new understanding to how stars are formed and how the universe is aging. *Star Splitters* (NASA SP–466) describes the three HEAO missions. *Gamma Ray Astrophysics* (NASA SP–453) is a science-oriented look at the new discoveries space flight has yielded in that sector of astronomy.

And there is more to come. An infrared astronomy observatory went into orbit early in 1983 and is pushing our knowlege to the very edge of the universe.

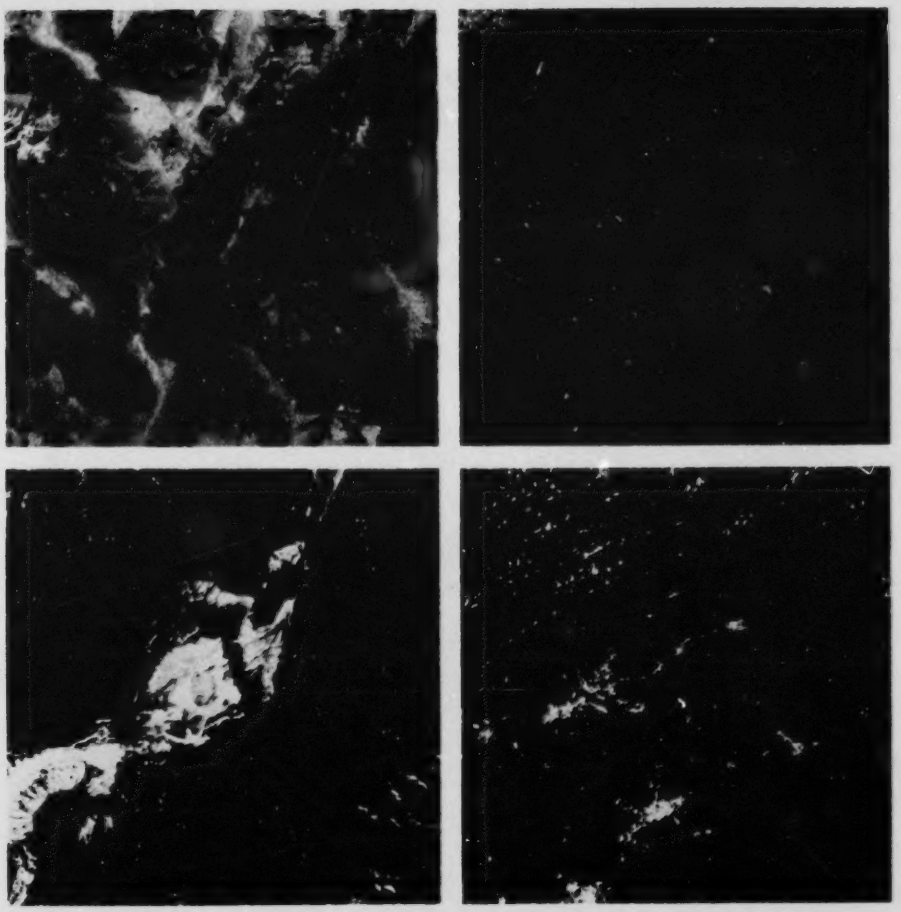
All these missions and more were conceived and carried out as NASA followed its 1958 charter in space. But that charter also carried responsibilities on Earth. In aviation and aeronautics, NASA continued to expand understanding and technology. Key technological advances included the swept wing, the area-ruled fuselage, and the supercritical wing, and advances were made in propulsion, computers, and electronics.

Wind Tunnels of NASA (NASA SP–440) looks at the state-of-the-art work done in supersonic craft, in improving commercial aviation, and in developing innovative new flying machines. *Fuel Economy in Aviation* (NASA SP–462) looks at the practical results of NASA research aimed at making general aviation aircraft more efficient. And *Small Transport Aircraft Technology* (NASA SP–460) covers the most recent advances in that field.

As it pursued developments in aeronautics, NASA looked extensively at aircraft instrumentation and the problems inherent in determining their accuracy. *Measurements of Aircraft Speed and Altitude* (NASA RP–1046) is a fine technical evaluation of a variety of such instruments and includes tables for present airspeed and altitude, and sample calculations useful in practical applications.

Another aeronautical report covers methods for estimating a variety of factors in aircraft design, including size, weight, and power. It is *Subsonic Aircraft* (NASA RP–1060) and includes aspects of aeronautical evolution from 1918 to the present.

NASA engineering expertise also paid off in the energy field. In a joint project with the Department of Energy, NASA developed new and efficient wind turbines to generate electricity without burning scarce oil. *Capturing Energy from the Wind* (NASA SP–455) covers the program that brought



Landsat images

wind energy from backyard and farmyard into an era of windfarms and mass energy production.

Through every program and every mission, NASA research had practical application to a variety of ordinary fields. *Soldering Electrical Connections* (NASA SP–5002) is a widely used book describing techniques for manufacturing and repair. Other NASA publications describe methods of nondestructive testing, advanced photography, use of fuel cells, advanced medical applications, and applications for lasers.

But in a high-technology environment, NASA's efforts have far more impact and make greater contributions to increasing technical knowledge and skills. *Magnetic Tape Recording for the Eighties* (NASA RP–1075) is valuable guide to the practical and theoretical aspects of state-of-the-art recording technology. *Handling Hazardous Materials* (NASA SP–5032) is devoted to methods for safely storing and using a variety of substances, primarily used as rocket fuels, but also found in many industrial applications.

In developing machines to survive in space, NASA moved deeply into the area of new materials, advancing the state of that field into previously unknown regions. *Advanced Materials Technology* (NASA CP–2251) is the proceedings of a conference dedicated to transferring information to the commercial world and covers such materials as composites, polymers, ceramics, and metallics, as well as nondestructive testing, fracture and fatigue, and much more.

To learn more about Earth and its environment, NASA has pursued pertinent research along a broad front. *Ozone Trend Detectability* (NASA CP–2189) examines crucial work in monitoring Earth's ozone layer and *The Landsat Tutorial Workbook* (NASA RP–1078) is a handbook that contains guidelines for ground-truth work in remote sensing and for developing both instructional and research procedures in the field.

Communications and research techniques are vital to the technical community. A two-volume study, *Automated Decision Making and Problem*

Solving (NASA CP–2180) summarizes an important conference on artifical intelligence, operations research, and control theory. Another conference is reported in *Technical Communication: Perspectives for the Eighties* (NASA CP–2203) and contains important recommendations for both researchers and technical writers.

Scores of other publications are available, covering the many and diverse aspects of NASA-sponsored research and development. Among those with broad interest are *Capacitor Technologies: Applications and Reliability* (NASA CP–2186), *Fundamental Heat Transfer Research for Gas Turbine Engines* (NASA CP–2178), *Atmospheric Effects and Potential Climatic Impact of the 1980 Eruptions of Mount St. Helens* (NASA CP–2240), and *Airport / Community Noise* (NASA CP–2241).

It hardly seems that 25 years have passed since the National Aeronautics and Space Administration took on the challenge of space and aviation. And it hardly seems possible that so much has been done in so short a time.

But the vastness of space still waits. The questing mind still wonders. The human spirit still looks outward. Much remains to be done.

Sun eclipsed by Earth

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NASA-Industry Program Plans Conference, July 28-29, 1960

I. H. Abbott, M. B. Ames, H. L. Dryden, et al.

N63-90346 126 pp
Avail NTIS 1960

Proceedings of a Conference on Results of the First U.S. Manned Suborbital Space Flight

H. L. Dryden

N64-80458 76 pp
Avail GPO 1961

Proceedings of First National Conference on the Peaceful Uses of Space

N64-81182 179 pp
Avail NTIS 1961

Results of the Second U.S. Manned Suborbital Space Flight, July 21, 1961

N64-84681 58 pp
Avail GPO 1961

Proceedings of the International Meteorological Satellite Workshop, November 13-22, 1961

NASA meteorological satellite program, Tiros satellites, cloud studies, NASA meteorological satellite plans for the future.

N62-11221 233 pp
Avail GPO 1962

NASA Project Names

A listing of names and code words associated with NASA programs.

N62-11673 20 pp
Avail NTIS 1962

Results of the First United States Manned Orbital Space Flight, February 20, 1962

N62-10229 204 pp
Avail GPO 1962

U.S. Standard Atmosphere, 1962

Tables of atmospheric properties, systematic variations in the atmosphere, gravity, geopotential.

N63-13176 5 pp
Avail NTIS 1963

The United States in Space

Activities in the United States space program.

N64-12818 227 pp
Avail NTIS 1963

Proceedings of the Experimenters' Information Meeting on the Apollo Applications Program in Bioscience

D. R. Beem, S. J. Gerathewohl

N66-31806 137 pp
Avail NTIS 1966

U.S. Standard Atmosphere Supplements, 1966

Tables and models depicting conditions other than mid-latitude mean.

N67-37900 304 pp
Avail NTIS 1966

Short Glossary of Space Terms

Glossary of technical terms in frequent use by aerospace technologists.

NASA SP-1
N66-25785 55 pp
Avail NTIS 1962

Proceedings of the Second Image Intensifier Symposium

Advances in science, technology, and application of image tubes. Symposium, October 1961.

NASA SP-2
N62-14873 252 pp
Avail NTIS 1961

List of Selected References on NASA Programs

Technical reports, technical notes, technical translations, journal articles, speeches, Congressional documents.

NASA SP-3
N62-14103 263 pp
Avail NTIS 1962

NASA Day, April 27, 1962: Western Space Age Industries and Engineering Exposition and Conference

Space science, applications, tracking and data acquisition.

NASA SP-4
N62-14863 66 pp
Avail NTIS 1962

Space Scientists and Engineers: Selected Biographical and Bibliographical Listing, 1957-1961

NASA SP-5
N63-90035 336 pp
Avail NTIS 1962

Results of the Second United States Manned Orbital Space Flight, May 24, 1962

Spacecraft and launch systems, modified Mercury network, space phenomena, medical aspects.

NASA SP-6
N62-14691 107 pp
Avail NTIS 1962

Dictionary of Technical Terms for Aerospace Use

W. H. Allen

NASA SP-7
N66-10413 310 pp
Avail NTIS 1965

Proceedings of the Second National Conference on the Peaceful Uses of Space

Mercury, Apollo, Gemini projects; meteorological and communication satellites. Conference, May 1962.

NASA SP-8
N63-11137 272 pp
Avail GPO 1962

Index of NASA Technical Publications With Abstracts

July 1960 to December 1961.

NASA SP-9
N63-90006 432 pp
Avail NTIS 1961

Launch Vehicles of the National Launch Vehicle Program

J. E. Webb

Technical descriptions of Scout, Delta, Titan, Atlas, Thor-Agena, Centaur, Saturn, advanced Saturn, and Nova launch vehicles.

NASA SP-10
N63-10712 34 pp
Avail NTIS 1962

Proceedings of the NASA-University Conference on the Science and Technology of Space Exploration

H. R. Anderson, W. R. Bandeen, G. W. Beadle, et al.

Rockets, geophysics, astronomy, celestial mechanics, bioastronautics. Conference, November 1962.

NASA SP-11
N63-11501 412 pp
Avail GPO 1962

Results of the Third U.S. Manned Orbital Space Flight, October 3, 1962

Spacecraft and launch vehicle performance, aeromedical analysis, pilot's flight report.

NASA SP-12
N63-11990 122 pp
Avail GPO 1962

Geophysics and Astronomy in Space Exploration

R. E. Bourdeau, J. K. Kupperian, Jr., G. H. Ludwig, et al.

Sounding rockets, space flight ionosphere studies, particles and fields research in space, astronomical research in space, aeronomy research.

NASA SP-13
N63-11503 45 pp
Avail NTIS 1962

Lunar and Planetary Sciences in Space Exploration

H. R. Anderson, J. E. Conel, M. Eimer, et al.

Radar astronomy, exploration of deep space, interplanetary space physics, astrophysics, geological exploration of the Moon and planets.

NASA SP-14
N63-11504 84 pp
Avail NTIS 1962

Celestial Mechanics and Space Flight Analysis

C. R. Gates, T. W. Hamilton, W. M. Kaula, et al.

Computer techniques, satellite orbits, spacecraft flight, space flight optimization.

NASA SP-15
N63-11505 42 pp
Avail NTIS 1962

Data Acquisition From Spacecraft

W. R. Bandeen, A. G. Ferris, C. C. Kirsten, et al.

Role of data processing in orbit determination, scientific and meteorological satellites, data acquisition at planetary ranges.

NASA SP-16
N63-11506 58 pp
Avail NTIS 1962

Control, Guidance, and Navigation of Spacecraft

J. C. Bird, B. F. Doolin, J. V. Foster, et al.

Space rendezvous, atmosphere entry, space vehicle attitude control.

NASA SP-17
N63-11507 56 pp
Avail NTIS 1962

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Bioastronautics

S. J. Gerathewohl, B. E. Gernandt, R. S. Johnston, et al.

Bioengineering, exobiology, environmental biology, physiological and behavioral sciences.

NASA SP-18
N63-11508 36 pp
Avail NTIS 1962

Chemical Rocket Propulsion

C. L. Ball, M. J. Hartmann, E. R. Jonash, et al.

Physics of liquid propellants, pumps, turbines, chemical rockets, research on rocket combustion and thrust chambers.

NASA SP-19
N63-11509 55 pp
Avail NTIS 1962

Nuclear Rocket Propulsion

D. Bogart, H. H. Ellerbrock, D. S. Gabriel, et al.

Fluid flow, heat transfer, reactors, dynamics and control of nuclear rockets.

NASA SP-20
N63-11510 62 pp
Avail NTIS 1962

Power for Spacecraft

C. A. Barrett, D. T. Bernatowicz, T. P. Moffitt, et al.

Interrelation of power requirements, energy sources, conversion techniques.

NASA SP-21
N63-11511 27 pp
Avail NTIS 1962

Electric Propulsion for Spacecraft

E. E. Callaghan, J. R. Jack, S. Lieblein, et al.

Power generation systems, electrothermal thrusters.

NASA SP-22
N63-11512 37 pp
Avail NTIS 1962

Aerodynamics of Space Vehicles

M. H. Bertram, R. W. Boswinkle, Jr., J. P. Campbell, et al.

Launch vehicles, space vehicle landing, hypersonic cruising, advanced reentry vehicles.

NASA SP-23
N63-11513 57 pp
Avail NTIS 1962

Gas Dynamics in Space Exploration

H. J. Allen, T. N. Canning, G. Goodwin, et al.

Hypersonic flow fields, gases at hypervelocities.

NASA SP-24
N63-11514 52 pp
Avail NTIS 1962

Plasma Physics and Magnetohydrodynamics in Space Exploration

A. Busemann, M. C. Ellis, Jr., R. V. Hess, et al.

Drag forces in the Earth's upper atmosphere, plasma frequency and radio attenuation, plasma accelerator research.

NASA SP-25
N63-11515 78 pp
Avail NTIS 1962

Laboratory Techniques in Space Environment Research

D. D. Elleman, F. B. Humphrey, H. E. Martens, et al.

High-vacuum research techniques, modern magnetism, magnetic field generation.

NASA SP-26
N63-11516 52 pp
Avail NTIS 1962

Materials for Space Operations

D. D. Davis, Jr., R. H. Kemp, G. F. Pezdirtz, et al.

Nonmetallic materials for spacecraft, ablation materials for atmospheric entry, flow and fracture problems, high-strength materials research.

NASA SP-27
N63-11517 47 pp
Avail NTIS 1962

Structures for Space Operations

R. A. Anderson, G. W. Brooks, R. W. Leonard, et al.

Winged vehicle and planetary entry vehicle configuration and design.

NASA SP-28
N63-11518 48 pp
Avail NTIS 1962

SS

Proceedings of the Second NASA–Industry Program Plans Conference

W. L. Lingle, Jr.,

NASA missions, future trends, space sciences program, lunar and planetary programs, biological problems related to space, launch vehicles and propulsion, meteorological and communication systems. Conference, February 1963.

NASA SP-29
N63-15357 221 pp
Avail GPO 1963

The Observatory Generation of Satellites

Orbiting solar, geophysical, and astronomical observations. Symposium, December 1962.

NASA SP-30
N63-15166 62 pp
Avail GPO 1963

Measurement of Thermal Radiation Properties of Solids

J. C. Richmond

Measurement of thermal radiation properties of solids over a wide range of temperatures; emittance studies. Symposium, September 1962.

NASA SP-31
N64-10937 596 pp
Avail GPO 1963

Telstar I

Volume 1. Design, construction, ground facilities uses.

NASA SP-32
N64-10868 400 pp
Avail NTIS 1963

Volume 2. Antennas, results of Telstar tests and experiments.

NASA SP-32
N64-10882 525 pp
Avail NTIS 1963

Volume 3. Components and systems.

NASA SP-32
N64-11079 283 pp
Avail NTIS 1963

Volume 4. Operations, characteristics, performance.

NASA SP-32
N67-12301 448 pp
Avail NTIS 1965

Space Flight Handbooks. Volume 1: Orbital Flight Handbook

D. Kraft, G. Townsend

Part 1. Basic Techniques and Data

NASA SP-33
N63-21101 323 pp
Avail NTIS 1963

Space Flight Handbooks. Volume I: Orbital Flight Handbook

Part 2. Mission Sequencing Problems

NASA SP-33
N63-21102 443 pp
Avail NTIS 1963

Part 3. Requirements

NASA SP-33
N63-21103 384 pp
Avail NTIS 1963

Space Flight Handbooks. Volume II: Lunar Flight Handbook

F. Martikan, F. Santora

Part 1. Background Material

NASA SP-34
N63-21104 143 pp
Avail NTIS 1963

Part 2. Lunar Mission Phases

NASA SP-34
N63-21105 444 pp
Avail NTIS 1963

Part 3. Mission Planning

NASA SP-34
N63-21106 156 pp
Avail NTIS 1963

Space Flight Handbooks. Volume III: Planetary Flight Handbook

S. Ross

Part 1. Speed Contours and Auxiliary Graphs for Manned Missions to Mars and Venus

NASA SP-35
N64-14175 280 pp
Avail NTIS 1963

Part 2. Supplementary Trajectory Data: Earth to Venus and Earth to Mars

NASA SP-35
N64-14176 522 pp
Avail NTIS 1963

Part 3. Supplementary Trajectory Data: Venus to Earth and Mars to Earth

NASA SP-35
N64-14177 530 pp
Avail NTIS 1963

Part 5. Trajectories to Jupiter, Ceres, and Vesta

NASA SP-35
N66-21045 541 pp
Avail NTIS 1966

Part 6. Mars Stopover Missions Using Venus Swingbys

NASA SP-35
N68-30098 98 pp
Avail NTIS 1968

Part 7. Direct Trajectories to Jupiter, Saturn, Uranus, and Neptune

NASA SP-35
N69-33490 105 pp
Avail GPO 1969

Space Flight Handbooks. Volume III: Planetary Flight Handbook

Part 8. Jupiter Swingby Missions to Saturn, Uranus, Neptune, and Pluto

NASA SP-35
N69-34850 131 pp
Avail GPO 1969

Part 9. Direct and Venus Swingby Trajectories

NASA SP-35
N70-28534 238 pp
Avail GPO 1970

Aerodynamic Design of Axial-Flow Compressors

R. O. Bullock, I. A. Johnsen

Aerodynamic systems design of axial flow compressors.

NASA SP-36
N65-23345 524 pp
Avail NTIS 1965

Conference on Space, Science, and Urban Life

W. E. Thompson

Use of space age science and technology to solve socioeconomic problems of metropolitan areas resulting from industrial growth. Conference, March 1963.

NASA SP-37
N64-11502 265 pp
Avail GPO 1963

Advanced Bearing Technology

W. J. Anderson, E. E. Bisson

Fundamentals of friction and wear on fluid film and rolling-element bearings.

NASA SP-38
N64-15226 517 pp
Avail GPO 1964

Results of the Project Mercury Ballistic and Orbital Chimpanzee Flights

J. P. Henry, J. D. Mosely

NASA SP-39
N64-12915 77 pp
Avail GPO 1963

Proceedings of the Conference on Space-Age Planning

Space-age planning and the peaceful uses of space. Conference, May 1963.

NASA SP-40
N63-21126 272 pp
Avail GPO 1963

Proceedings of the NASA-AEC Liquid-Metals Corrosion Meeting, Volume 1

Liquid metal corrosion processes.

NASA SP-41
N64-20783 292 pp
Avail NTIS 1964

Proceedings of the NASA-AEC Liquid-Metals Corrosion Meeting, Volume 2

NASA SP-42
N73-70372 54 pp
Avail NTIS 1963

Ariel I: The First International Satellite

R. C. Baumann

Development of Ariel I ionosphere satellite.

NASA SP-43
N64-10332 84 pp
Avail NTIS 1963

Proceedings of the Conference on the Law of Space and of Satellite Communications

Space law and communications satellites, free space lower boundary, control of space, orbital regulation, and international cooperation. Conference, May 1963.

NASA SP-44
N64-21136 212 pp
Avail GPO 1964

Mercury Project Summary, Including Results of the Fourth Manned Orbital Flight, May 15–16, 1963

Space vehicle development, mission support, flight operations, mission results.

NASA SP-45
N63-21951 435 pp
Avail GPO 1963

Physics of Nonthermal Radio Sources

A. G. W. Cameron, S. P. Maran

Spectra, polarization, and optical properties of galactic and extragalactic light sources. Conference, December 1962.

NASA SP-46
N65-13251 159 pp
Avail NTIS 1964

Space Cabin Atmospheres. Part I: Oxygen Toxicity

E. M. Roth

High oxygen tension in animals and humans, oxygen toxicity, and drug therapy.

NASA SP-47
N64-31219 59 pp
Avail GPO 1964

Space Cabin Atmospheres. Part II: Fire and Blast Hazards

E. M. Roth

Fire and blast hazards in space cabin atmospheres.

NASA SP-48
N64-20744 126 pp
Avail GPO 1964

Meteorological Observations Above 30 Kilometers

Meteorological rocket soundings in stratosphere and mesosphere. Conference, July 1963.

NASA SP-49
N64-23869 61 pp
Avail GPO 1964

AAS-NASA Symposium on the Physics of Solar Flares

W. N. Hess

Spectrographic and magnetic observations of flares, x-ray and gamma ray bursts, radio bursts, energetic particles, theory of flares. Symposium, October 1963.

NASA SP-50
N64-30251 433 pp
Avail GPO 1964

Proceedings of the Fourth National Conference on the Peaceful Uses of Space

Exploration of space, discoveries from space exploration, uses of weather and communication satellites. Conference, April 1964.

NASA SP-51
N64-30326 205 pp
Avail GPO 1964

Proceedings of the NASA Conference on Communicating Through Plasmas of Atmospheric Entry and Rocket Exhaust

Reentry communication problems, studies using simulated reentry plasma, flight experiments. Conference, January 1964.

NASA SP-52
N71-70451 231 pp
Avail NTIS 1964

A Quasi-Global Presentation of Tiros III Radiation Data

L. J. Allison, T. I. Gray, Jr., G. Warnecke

Tiros III worldwide radiation map, synoptic application of infrared data.

NASA SP-53
N65-10301 16 pp
Avail GPO 1964

Scientific Findings From Explorer VI

H. E. Newell

Scientific data acquired by Explorer satellite measurements; astronomy and celestial mechanics, ionospheric physics, and energetic particles in Van Allen belt and magnetic fields.

NASA SP-54
N65-21965 377 pp
Avail NTIS 1965

Symposium on Thermal Radiation of Solids

S. Katzoff

Fundamentals, surface effects, measurement techniques, space environment effects, and applications of thermal radiation of solids. Conference, March 1964.

NASA SP-55
N65-26855 590 pp
Avail NTIS 1965

Concepts for Detection of Extraterrestrial Life

F. H. Quimby

NASA SP-56
N65-12268 52 pp
Avail NTIS 1964

Orbiting Solar Observatory Satellite OSO-1: The Project Summary

OSO-1 spacecraft dynamics, structural design and fabrication, control systems, data acquisition and command system, power supply, thermal control, experiments, and test program.

NASA SP-57
N66-29482 308 pp
Avail NTIS 1965

Effect of Ionizing Radiation on a Series of Saturated Polyesters

G. F. Dalelio, R. Haberli, G. F. Pezdirtz

NASA SP-58
N65-11059 68 pp
Avail NTIS 1964

Mariner-Venus 1962: Final Project Report

Project organization and management, space vehicle system, trajectory and orbit, tracking and data acquisition, scientific results.

NASA SP-59
N66-14702 380 pp
Avail NTIS 1965

X-15 Research Results, With a Selected Bibliography

W. H. Stillwell

X-15 aircraft development concept, flight research, aerodynamic characteristics of supersonic-hypersonic flight, hypersonic structure, flying laboratory, and bibliography.

NASA SP-60
N65-20162 135 pp
Avail NTIS 1965

Ranger VII Photographs of the Moon. Part I: Camera "A" Series

Lunar surface closeup pictures.

NASA SP-61
N64-31723 226 pp
Avail GPO 1964

Ranger VII Photographs of the Moon. Part II: Camera "B" Series

NASA SP-62
N65-17866 226 pp
Avail GPO 1965

Ranger VII Photographs of the Moon. Part III: Camera "P" Series

Lunar photographs taken by four partial-scan cameras aboard Ranger VII.

NASA SP-63
N65-33848 235 pp
Avail NTIS 1965

Progress in Development of Methods in Bone Densitometry

D. W. Jenkins, W. F. Neumann, G. D. Whedon

Determining thickness and mineral content in vertebra and other bones by x-ray and other densitometry, application of techniques to human studies. Conference, March 1965.

NASA SP-64
N66-17666 199 pp
Avail NTIS 1966

Space Technology. Volume I: Spacecraft Systems

L. H. Abraham

Spacecraft systems, aerodynamics, power plants, loads, propellant tank design.

NASA SP-65
N65-24625 82 pp
Avail NTIS 1965

Space Technology. Volume II: Spacecraft Mechanical Engineering

J. L. Adams

Spacecraft design and mechanical engineering.

NASA SP-66
N65-24626 169 pp
Avail NTIS 1965

Space Technology. Volume IV: Spacecraft Guidance and Control

J. R. Scull

Spacecraft control, navigation, and guidance.

NASA SP-68
N67-16059 140 pp
Avail NTIS 1966

Space Technology. Volume V: Telecommunications

J. J. Stiffler

Improved data handling and pulse modulation systems for space telecommunication.

NASA SP-69
N67-16555 148 pp
Avail NTIS 1966

Proceedings of the Conference on Space Nutrition and Related Waste Problems

T. C. Helvey

Conference, April 1964.

NASA SP-70
N65-18566 408 pp
Avail NTIS 1964

Proceedings of Second Symposium on Protection Against Radiation in Space

A. Reetz, Jr.

Symposium, October 1964.

NASA SP-71
N65-34575 519 pp
Avail NTIS 1965

Symposium on the Analysis of Central Nervous System and Cardiovascular Data Using Computer Methods

W. R. Adey, L. D. Proctor

Symposium, October 1964.

NASA SP-72
N65-28750 492 pp
Avail NTIS 1965

The Nature and Scope of the NASA University Program

T. L. K. Smull

NASA SP-73
N65-28332 41 pp
Avail NTIS 1965

Survey of the Literature of the Solar Constant and the Spectral Distribution of Solar Radiant Flux

M. P. Thekaekara

Solar constant, spectral distribution of solar radiant flux, solar radiation laws and simulation, spacecraft thermal balance, and radiation measurement scale.

NASA SP-74
N65-22362 47 pp
Avail NTIS 1965

An Analysis of the Extraterrestrial Life Detection Problem

R. D. Johnson, R. B. Painter, R. S. Young

NASA SP-75
N65-34227 36 pp
Avail NTIS 1965

Final Report on the Relay I Program

Relay I satellite program to carry out communications experiments with spacecraft, to detect radiation particles in Van Allen belt, and to determine radiation damage to components.

NASA SP-76
N66-10226 749 pp
Avail NTIS 1965

First Conference on the Role of the Vestibular Organs in the Exploration of Space

Role of vestibular apparatus, semicircular canals, and otolith organs in space explorations. Symposium, January 1965.

NASA SP-77
N66-16106 376 pp
Avail NTIS 1965

The Meteoroid Environment and Its Effects on Materials and Equipment

W. A. Cosby, R. G. Lyle

Hypervelocity impact phenomena.

NASA SP-78
N66-14158 119 pp
Avail NTIS 1965

Electrical Power Generation Systems for Space Applications

Current and predicted state of the art of solar, chemical, and nuclear systems.

NASA SP-79
N65-25272 42 pp
Avail NTIS 1965

Short-Term Frequency Stability

Panel discussion on frequency stability measurement techniques. Symposium, November 1964.

NASA SP-80
N66-10381 296 pp
Avail NTIS 1965

Summary Report on the NASA University Program Review Conference

D. J. Montgomery

Nature, conduct, results, and impact of the program. Conference, March 1965.

NASA SP-81
N65-28249 42 pp
Avail NTIS 1965

Proceedings of the Fifth National Conference on the Peaceful Uses of Space

Space research impact on national economy and industry, communications, education, and science and technology. Conference, May 1965.

NASA SP-82
N66-30366 212 pp
Avail NTIS 1966

Conference on Aircraft Operating Problems

Conference on aircraft operational problems of general, supersonic, V/STOL and STOL aircraft. May 1965.

NASA SP-83
N65-31100 335 pp
Avail NTIS 1965

Bioenergetics of Space Suits for Lunar Exploration

E. M. Roth

Literature review.

NASA SP-84
N66-27235 145 pp
Avail NTIS 1966

NASA University Program Review Conference

Training, research, space flight, technology, facilities, and experimentation. Conference, March 1965.

NASA SP-85
N66-12401 375 pp
Avail NTIS 1965

Medical Aspects of an Orbiting Research Laboratory

S. P. Vinograd

Life support system recommendations, human reaction to medical experiments for orbital research laboratory. Space Medicine Advisory Group Study, August 1964.

NASA SP-86
N66-33199 152 pp
Avail NTIS 1966

Proceedings of the Apollo Unified S-Band Technical Conference

Tracking and communications system for Apollo spacecraft at lunar distances using S-band. Conference, July 1965.

NASA SP-87
N65-35476 277 pp
Avail NTIS 1965

NASA 1965 Summer Conference on Lunar Exploration and Science

Overall program for lunar exploration missions, role of various scientific disciplines in early Apollo missions, manned lunar orbiter and surface expeditions, post-Apollo programs. Conference, July 1965.

NASA SP-88
N66-14826 448 pp
Avail NTIS 1965

Observations From the Nimbus I Meteorological Satellite

NASA SP-89
N66-12130 92 pp
Avail NTIS 1965

Progress of the X-15 Research Airplane Program

Conference, October 1965.

NASA SP-90
N73-71303 133 pp
Avail NTIS 1965

Significant Achievements in Space Astronomy, 1958–1964

Space astronomy developments in x-ray, gamma-ray, ultraviolet, infrared, and low-frequency radio spectra.

NASA SP-91
N66-34786 71 pp
Avail NTIS 1966

Significant Achievements in Space Bioscience, 1958–1964

Research in exobiology, environmental biology, behavioral biology, molecular biology and bioinstrumentation, space flight programs, and manned space flight.

NASA SP-92
N66-17778 142 pp
Avail NTIS 1966

Significant Achievements in Space Communications and Navigation, 1958–1964

Reasons for and advantages of communications and navigation satellites.

NASA SP-93
N66-18458 73 pp
Avail NTIS 1966

Significant Achievements in Satellite Geodosy, 1958–1964

Satellite observations in geodetic surveying.

NASA SP-94
N66-37346 178 pp
Avail NTIS 1966

Significant Achievements in Ionospheres and Radio Physics, 1958–1964

E. R. Schmerling

NASA SP-95
N66-22936 68 pp
Avail NTIS 1966

Significant Achievements in Satellite Meteorology, 1958–1964

Meteorological satellite and sounding rocket configurations and instrumentation, cloud photography, radiometry, data acquisition and processing.

NASA SP-96
N66-19523 148 pp
Avail NTIS 1966

Significant Achievements in Particles and Fields, 1958–1964

Explorer satellite and Mariner space probe data on solar wind, radiation belts, trapped particles, geomagnetic field, cosmic rays, and neutrons.

NASA SP-97
N66-19524 99 pp
Avail NTIS 1966

Significant Achievements in Planetary Atmospheres, 1958–1964

Planetary and Earth atmospheric composition, temperature, and activity data from satellites and sounding rockets.

NASA SP-98
N66-19525 65 pp
Avail NTIS 1966

Significant Achievements in Planetology, 1958–1964

Terrestrial observations of lunar and planetary electromagnetic radiation and chemical-mineralogical composition, and space probe data and instrumentation.

NASA SP-99
N66-23475 81 pp
Avail NTIS 1964

Significant Achievements in Solar Physics, 1958–1964

Solar soft x-ray and ultraviolet mapping, hard x-ray emission, corona, satellite monitored radiation, and instrumentation study summaries for solar physics.

NASA SP-100
N66-25003 106 pp
Avail NTIS 1966

Conference on Langley Research Related to Apollo Mission

Heating and thermal protection, landing dynamics, spacecraft simulation. Conference, June 1965.

NASA SP-101
N72-71553 413 pp
Avail NTIS 1965

Philosophy of Simulation in a Man-Machine Space Mission System

T. M. Fraser

Nature of simulation; prerequisites for simulation; fidelity, realism, and transfer of training; use of manned simulators.

NASA SP-102
N66-27236 116 pp
Avail NTIS 1966

Human Responses to Sustained Acceleration

T. M. Fraser

Review and bibliography of human response to sustained acceleration.

NASA SP-103
N66-27319 137 pp
Avail NTIS 1966

Proceedings of a Conference on Theoretical Biology

G. J. Jacobs

Cell synthesis and ecology. Conference, November 1963.

NASA SP-104
N66-30395 211 pp
Avail NTIS 1966

Vacuum Technology and Space Simulation

D. H. Holkeboer, D. W. Jones, F. Pagano, et al.

Nomenclature, pressure, pressure gauges, pumping speed and systems, cryogenic pumping, gas load, outgassing of materials, leak detection, gas flow in components and systems, space simulation and vacuum systems.

NASA SP-105
N66-36129 331 pp
Avail GPO 1966

The Dynamic Behavior of Liquids in Moving Containers

H. N. Abramson

Dynamic behavior of liquids in moving containers with applications to propellants in space vehicle fuel tanks.

NASA SP-106
N67-15884 479 pp
Avail NTIS 1966

Proceedings of a Symposium on Passive Gravity-Gradient Stabilization

Passive gravity-gradient stabilization systems for satellites. Symposium, May 1965.

NASA SP-107
N66-36326 291 pp
Avail NTIS 1966

Spacecraft Sterilization Technology

Spacecraft sterilization requirements, microbiological contamination control, sterilization techniques. Conference, November 1965.

NASA SP-108
N67-14761 601 pp
Avail NTIS 1966

Development of Small Animal Payload and Integration with a Sounding Rocket

L. J. Early

NASA SP-109
N66-33540 110 pp
Avail NTIS 1966

Involuntary Hypohydration in Man and Animals: A Review

J. E. Greenleaf

NASA SP-110
N66-23622 38 pp
Avail NTIS 1966

Ranger VIII Photographs of the Moon: Cameras "A," "B," and "P"

Lunar photographs taken by Ranger VIII and photograhic data tables.

NASA SP-111
N66-25366 478 pp
Avail GPO 1966

Ranger IX Photographs of the Moon: Cameras "A," "B," and "P"

Ranger IX photographs of crater Alphonsus on lunar surface.

NASA SP-112
N66-26555 193 pp
Avail NTIS 1966

Dynamic Stability of Rotor-Bearing Systems

E. J. Gunter, Jr.

NASA SP-113
N67-11942 234 pp
Avail NTIS 1966

Space Technology. Volume VI: Space Sciences

T. A. Farley

Geomagnetism, solar and galactic cosmic rays, comets, influence on Earth environment.

NASA SP-114
N67-18141 90 pp
Avail NTIS 1966

Second Symposium on the Role of the Vestibular Organs in Space Exploration

Vestibular changes, human equilibrium and orientation, adaptation of gravitoinertial receptor mechanisms during space missions. Symposium, January 1966.

NASA SP-115
N67-15121 315 pp
Avail NTIS 1966

Conference on V/STOL and STOL Aircraft

Aerodynamic and performance characteristics, handling qualities, and propulsion systems for STOL, VTOL, and V/STOL aircraft. Conference, April 1966.

NASA SP-116
N66-24606 461 pp
Avail NTIS 1966

Space Cabin Atmospheres. Part III: Physiological Factors of Inert Gases

E. M. Roth

NASA SP-117
N67-22878 135 pp
Avail NTIS 1967

Space Cabin Atmospheres. Part IV: One- Versus Multiple-Gas Systems

E. M. Roth

Physiological factors, hardware, and environmental control tradeoffs for one and two gas systems of space cabin atmospheres.

NASA SP-118
N67-29998 138 pp
Avail NTIS 1967

Ariel I: The First International Satellite. Experimental Results

Structural design, experimental data, tracking.

NASA SP-119
N67-16514 163 pp
Avail NTIS 1966

Fuel Cells

L. G. Austin

Review of government-sponsored fuel cell research, 1950–1964.

NASA SP-120
N67-40137 451 pp
Avail NTIS 1967

Gemini Midprogram Conference

Spacecraft and launch vehicle development and performance, flight operations, mission results, physical science and biomedical experiments. Conference, February 1966.

NASA SP-121
N66-29626 417 pp
Avail NTIS 1966

Summary Report on the NASA-Western University Conference

D. E. Cunningham

Conference, November 1965.

NASA SP-122
N67-11943 55 pp
Avail NTIS 1966

Nuclear Rocket Technology Conference

Graphite nuclear rocket and tungsten water-moderated nuclear rocket. Conference, April 1966.

NASA SP-123
N73-70969 325 pp
Avail NTIS 1966

Conference on Aircraft Aerodynamics

Experimental techniques; stability and control; propulsion aerodynamics; subsonic, supersonic, and transonic aerodynamics. Conference, May 1966.

NASA SP-124
N75-71754 611 pp
Avail NTIS 1966

Design of Liquid Propellant Rocket Engines

D. H. Huang, D. K. Huzel

Parameters for design of rocket engines and systems.

NASA SP-125
N71-29405 461 pp
Avail NTIS 1971

Surveyor I: A Preliminary Report

Surveyor I preliminary data on lunar surface mechanical, thermal, and electrical properties, topography, and geology.

NASA SP-126
N66-29481 50 pp
Avail NTIS 1966

Astronomy in Space

G. E. Mueller, H. E. Newell, N. G. Roman, et al.

NASA space science astronomy program: orbiting satellite experiments for solar, stellar, and galactic observations.

NASA SP-127
N67-18730 67 pp
Avail NTIS 1967

Second Annual NASA-University Conference on Manual Control

Discrete and continuous models, multivariable and adaptive control, information theory, design methods. Conference, March 1966.

NASA SP-128
N67-15850 422 pp
Avail NTIS 1966

Earth Photographs From Gemini III, IV, and V

Earth color photographs from Gemini III, IV, and V indicating terrain features and cloud systems.

NASA SP-129
N67-26641 262 pp
Avail GPO 1967

A Review of the Mariner IV Results

O. W. Nicks

Data on Mars, solar system, and interplanetary space flight.

NASA SP-130
N67-31356 42 pp
Avail NTIS 1967

Space Power Systems Advanced Technology Conference

Chemical and nuclear power, reactor heat sources, and power conversion. Conference, August 1966.

NASA SP-131
N67-10261 295 pp
Avail NTIS 1966

Aerospace Measurement Techniques

G. G. Mannella

Advanced aerospace technology measurement techniques and instrumentation. Symposium, July 1966.

NASA SP-132
N67-17781 280 pp
Avail NTIS 1967

Scientific Satellites

Equipment, instrumentation, communications, design, launch vehicles, and guidance of scientific satellites.

NASA SP-133
N68-14965 828 pp
Avail GPO 1967

Conference on the Closed Life Support System

Water purification, waste disposal, and food synthesis for space flights. Conference, April 1966.

NASA SP-134
N67-34583 231 pp
Avail NTIS 1967

Meteor Orbits and Dust: Proceedings of a Symposium

G. S. Hawkins

Concentrations and orbital calculations of meteors and meteoritic and extraterrestrial dust particles. Symposium, August 1965.

NASA SP-135
N67-32038 437 pp
Avail NTIS 1967

Significant Achievements in Space Science, 1965

H. E. Newell

NASA SP-136
N67-19022 222 pp
Avail NTIS 1967

Significant Achievements in Space Applications, 1965

Space satellite application in communications, navigation, geodesy, and meteorology.

NASA SP-137
N67-18724 91 pp
Avail NTIS 1966

Gemini Summary Conference

Rendezvous, docking, extravehicular activity, experiment results. Conference, February 1967.

NASA SP-138
N68-14941 335 pp
Avail NTIS 1967

Mariner-Mars 1964: Final Project Report

Mariner-Mars 1964 mission accomplishments.

NASA SP-139
N68-18743 356 pp
Avail NTIS 1967

Interstellar Grains

J. M. Greenberg, T. P. Roark

Observational and theoretical interpretations of interstellar grains. Conference, August 1965.

NASA SP-140
N68-11456 275 pp
Avail GPO 1967

First Compilation of Papers on Trajectory Analysis and Guidance Theory

Mathematical models to approximate functions, bounds and power series for three-body problems, satellite orbit theories, and other aspects of trajectory analysis and guidance theory.

NASA SP-141
N67-29370 227 pp
Avail NTIS 1967

A Survey of Space Applications

NASA program for application of space science and technology to public sector.

NASA SP-142
N67-23338 140 pp
Avail GPO 1967

Oxide Dispersion Strengthened Alloys

N. J. Grant, R. W. Hall, H. J. Siegel

State-of-the-art survey on oxide dispersion strengthened alloys for use as high temperature materials.

NASA SP-143
N67-37477 30 pp
Avail NTIS 1967

Third Annual NASA-University Conference on Manual Control

Display devices, function models, decision processes, physiological modeling, computer processing of manual control records. Conference, March 1967.

NASA SP-144
N68-15901 435 pp
Avail NTIS 1967

A Survey of Attitude Sensors for Spacecraft

N. M. Hatcher

Spacecraft attitude sensors design and operational features, horizon scanners, solar sensors, star trackers, space sextants, and map matchers.

NASA SP-145
N67-31296 21 pp
Avail NTIS 1967

Surveyor III: A Preliminary Report

Preliminary observations from Surveyor III soft Moon landing, telemetered pictures and data on mechanical soil sampler, lunar surface properties.

NASA SP-146
N67-32582 170 pp
Avail NTIS 1967

Sonic Boom Research

A. R. Seebass

Conference, April 1967.

NASA SP-147
N68-21413 115 pp
Avail NTIS 1967

Conference on Hypersonic Aircraft Technology

Mission studies, configuration aerodynamics, hypersonic viscous flow, propulsion, structures and materials. Conference, May 1967.

NASA SP-148
N74-73049 591 pp
Avail NTIS 1967

Summary of Gemini Extravehicular Activity

R. M. Machell

NASA SP-149
N68-15891 336 pp
Avail NTIS 1967

The Zodiacal Light and the Interplanetary Medium

J. L. Weinberg

Photometric and meteor observations, scattering properties, particle collection and impact, solar wind, and origin and evolution of zodiacal light in interplanetary medium. Conference, February 1967.

NASA SP-150
N68-27475 395 pp
Avail NTIS 1967

Relay Program Final Report

Summary of operation, communications, and other experiments of Relay II satellite.

NASA SP-151
N69-21065 368 pp
Avail GPO 1968

Third Symposium on the Role of the Vestibular Organs in Space Exploration

Symposium, January 1967.

NASA SP-152
N68-29128 437 pp
Avail NTIS 1968

Symposium on Computer Simulation of Plasma and Many-Body Problems

Plasma physics, Vlasov theory, astrophysics, magnetohydrodynamics, many-body problems, and computer simulation. Symposium, April 1967.

NASA SP-153
N67-37737 465 pp
Avail NTIS 1967

Aerospace Electronic Systems Technology: A Briefing for Industry

Conference, May 1967.

NASA SP-154
N68-33169 319 pp
Avail NTIS 1967

Significant Achievements in Space Science, 1966

Advances in astronomy, exobiology, ionospheric sciences, radio and solar physics, planetary atmospheres, and planetology.

NASA SP-155
N68-15748 224 pp
Avail GPO 1967

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Significant Achievements in Space Applications, 1966

R. H. McQuain

Achievements of application technology satellites, communication satellites, navigation and traffic control satellite program, weather satellites, and satellite geodesy.

NASA SP-156
N68-16015 97 pp
Avail NTIS 1967

1967 Summer Study of Lunar Science and Exploration

W. N. Hess

Future of lunar manned and unmanned exploration and Apollo applications program.

NASA SP-157
N67-40564 405 pp
Avail NTIS 1967

The Potential Applications of Satellite Geodetic Techniques to Geosciences

Potential applications of geodetic satellites to geology, oceanography, glaciology, and atmospheric physics.

NASA SP-158
N68-18902 26 pp
Avail NTIS 1968

Recent Advances in Display Media

Properties and imaging techniques of various display devices: computer-directed visual flight control boards, integrated optical man-machine systems, and electro-optical methods. Symposium, September 1967.

NASA SP-159
N68-22302 129 pp
Avail NTIS 1963

Vibration of Plates

A. W. Leissa

Tabulated numerical results of theories of plate vibration.

NASA SP-160
N70-18461 360 pp
Avail GPO 1969

Biology of Hard Tissue: Proceedings of the Second Conference

A. M. Budy

Bone diseases and regeneration, cellular differentiation, and homeostasis of calcium. Conference, March 1966.

NASA SP-161
N69-10444 399 pp
Avail GPO 1968

Objectives and Goals in Space Science and Applications, 1968

J. E. Naugle

Objectives, current programs, and future mission options in space sciences and applications.

NASA SP-162
N69-13844 97 pp
Avail GPO 1968

Surveyor V: A Preliminary Report

Configuration, television picture transmission, and experiments on measuring chemical elements in lunar surface.

NASA SP-163
N68-17844 162 pp
Avail NTIS 1967

Thermal Radiation Heat Transfer

J. R. Howell, R. Siegel

Volume 1. The Blackbody, Electromagnetic Theory, and Material Properties

NASA SP-164
N68-28530 194 pp
Avail NTIS 1968

Volume II. Radiation Exchange Between Surfaces and in Enclosures

NASA SP-164
N69-30317 290 pp
Avail GPO 1969

Volume III. Radiation Transfer With Absorbing, Emitting, and Scattering Media

NASA SP-164
N71-30941 362 pp
Avail GPO 1971

Bioregenerative Systems

Bioregenerative life support systems for long duration space flights; hydrogenomonas biosynthesis and algae photosynthesis processes. Conference, November 1966.

NASA SP-165
N68-26207 152 pp
Avail NTIS 1968

Surveyor VI: A Preliminary Report

Surveyor VI scientific data analysis.

NASA SP-166
N68-21443 173 pp
Avail NTIS 1968

Significant Achievements in Space Science, 1967

Stellar astronomy, bioscience, ionospheres, planetology, particles and fields, solar physics, and planetary atmospheres.

NASA SP-167
N69-25460 548 pp
Avail GPO 1968

Exploring Space With a Camera

E. M. Cortright

Spaceborne photography of cloud cover and other meteorological phenomena, Surveyor and Orbiter lunar shots, and Gemini space walk and target docking.

NASA SP-168
N68-34870 227 pp
Avail GPO 1968

Protection Against Space Radiation

K. Obrien, A. Reetz, Jr.

Space radiation transport, spacecraft shielding design and advanced concepts, and methods for calculating radiation penetration through protective shields. Conference, June 1967.

NASA SP-169
N68-26128 627 pp
Avail NTIS 1968

Numerical Analysis

R. H. Wilson, Jr.

Numerical analysis applications to aerospace and related problems. Conference, January 1968.

NASA SP-170
N68-33245 46 pp
Avail NTIS 1968

Earth Photographs From Gemini VI Through XII

Color photographs of Earth taken during Gemini flights VI through XII.

NASA SP-171
N69-28909 335 pp
Avail GPO 1968

Batteries for Space Power Systems

P. Bauer

NASA development work on high efficiency batteries for space electric power systems.

NASA SP-172
N69-18042 314 pp
Avail NTIS 1968

Surveyor VII: A Preliminary Report

Principal scientific results on Surveyor VII lunar mission.

NASA SP-173
N68-33553 304 pp
Avail NTIS 1968

Conference on Electromagnetic Exploration of the Moon: June 11-13, 1968. Report of the Program Evaluation Committee

Proposed electromagnetic exploration of Moon. Conference, June 1968.

NASA SP-174
N69-33595 27 pp
Avail NTIS 1969

EXAMETNET Data Report Series Annual Report, 1966

Rocket sounding meteorological data of EXAMETNET for 1966.

NASA SP-175
N69-16214 190 pp
Avail NTIS 1968

EXAMETNET Data Report Series Annual Report, 1967

EXAMETNET meteorological rocket launchings and data dissemination, with tables.

NASA SP-176
N69-22570 188 pp
Avail NTIS 1969

Proceedings of the Working Group on Extraterrestrial Resources

Lunar environment, bases, exploration, and extraterrestrial resources. Conference, February 1968.

NASA SP-177
N69-22226 247 pp
Avail NTIS 1968

The Book of Mars

S. Glasstone

Observations and theoretical studies of Mars properties.

NASA SP-179
N69-16571 307 pp
Avail GPO 1968

Second Conference on Sonic Boom Research

I. R. Schwartz

Sonic boom reduction in supersonic transport flight. Shock wave propagation and refraction, prediction methods for acoustic attenuation, aerodynamic engineering aspects. Conference, May 1968.

NASA SP-180
N68-34907 218 pp
Avail NTIS 1968

Interdisciplinary Approach to Friction and Wear

P. M. Ku

Structure, interactions, and topography of solid surfaces, sliding friction, adhesion, wear, and boundary lubrication. Conference, November 1967.

NASA SP-181
N69-30401 489 pp
Avail GPO 1968

Problems and Programs on the Use of Submillimeter Waves in Space

M. R. Nagel

Uses of submillimeter waves in aerospace technology, with bibliography.

NASA SP-182
N68-35522 49 pp
Avail NTIS 1968

Some Fluid Mechanical Problems Related to Subsonic and Supersonic Aircraft

J. T. Howe

NASA SP-183
N69-10693 24 pp
Avail NTIS 1968

Surveyor: Program Results

Summary of lunar data and scientific observations generated by Surveyor landings on Moon.

NASA SP-184
N69-36451 432 pp
Avail GPO 1969

A Study of NASA University Programs

NASA university programs in personnel training, aeronautics and space research, and laboratories and research centers.

NASA SP-185
N68-35564 85 pp
Avail NTIS 1968

Theories of Equilibrium Figures of a Rotating Homogeneous Fluid Mass

Y. Hagihara

Theory of equilibrium figures of rotating, homogeneous, incompressible fluid mass as applied to cosmology.

NASA SP-186
N71-33591 174 pp
Avail GPO 1970

Fourth Symposium on the Role of the Vestibular Organs in Space Exploration

Etiology, symptomatology, and treatment of motion sickness with respect to vestibular organ and related neurological functions. Symposium, September 1968.

NASA SP-187
N70-30699 393 pp
Avail GPO 1970

CO_2: Chemical, Biological, and Physiological Aspects

J. T. Edsall, R. E. Forster, A. B. Otis, et al.

Molecular structure of carbonic anhydrase, enzymatic carboxylation, and respiratory gas exchange.

NASA SP-188
N70-23290 242 pp
Avail GPO 1969

Progress of NASA Research Relating to Noise Alleviation of Large Subsonic Jet Aircraft

Nacelle acoustic linings, sound generation in jet engines, operational noise effects on humans. Conference, October 1968.

NASA SP-189
N69-11542 691 pp
Avail NTIS 1968

Mariner-Venus, 1967: Final Project Report

Results and tracking and data acquisition for Mariner-Venus 1967 and Mariner-Venus 1967 extension projects.

NASA SP-190
N72-20809 310 pp
Avail GPO 1971

Average Evoked Potentials: Methods, Results, and Evaluations

E. Donchin, D. B. Lindsley

Methods, results, and evaluation of research in average evoked potentials. Conference, September 1968.

NASA SP-191
N70-16876 410 pp
Avail GPO 1969

Fourth Annual NASA-University Conference on Manual Control

Mathematical models of human performance in manual control of man-machine systems. Conference, March 1968.

NASA SP-192
N70-14876 573 pp
Avail NTIS 1969

Evaluation of Motion-Degraded Images

Optical filters and digital methods for blurring removal from photographic imagery. Conference, December 1968.

NASA SP-193
N69-33322 178 pp
Avail GPO 1969

Liquid Propellant Rocket Combustion Instability

D. T. Harrje

Combustion instability in liquid propellant rocket engines.

NASA SP-194
N72-33729 659 pp
Avail GPO 1972

Significant Accomplishments in Science: Goddard Space Flight Center, 1968

Investigation of Earth atmospheric composition, geomagnetism, extraterrestrial radiation, solar activity, and planetary atmospheres by satellite experiment and astronomical observations. Symposium, January 1969.

NASA SP-195
N69-38951 196 pp
Avail NTIS 1969

NASA Science and Technology Advisory Committee for Manned Space Flight: Proceedings of the Winter Study on Uses of Manned Space Flight 1975–1985

Manned space flight capabilities for lunar and planetary explorations and Earth orbiting stations.

Volume I. Proceedings
NASA SP-196
N69-22510 45 pp
Avail NTIS 1969

Volume II. Appendixes
NASA SP-196
N70-17026 177 pp
Avail NTIS 1969

Lunar Orbiter I, Preliminary Results: Lunar Terrain Assessment and Selenodesy, Micrometeoroid, and Radiation Data

G. W. Brewer, J. K. Hughes

Lunar Orbiter I terrain assessment photographs and preliminary selenodesy, micrometeoroid, and radiation data.

NASA SP-197
N69-39213 147 pp
Avail NTIS 1969

Atlas of Cometary Forms: Structures Near the Nucleus

B. Donn, J. Rahe, K. Wurm

Atlas of drawings and photographs of comets.

NASA SP-198
N70-12260 135 pp
Avail GPO 1969

Lectures in High-Energy Astrophysics

H. B. Oegelmann, J. R. Wayland, Jr.

High-energy cosmic radiation problems.

NASA SP-199
N69-29652 170 pp
Avail NTIS 1969

The Moon as Viewed by Lunar Orbiter

F. El-Baz, L. J. Kosofsky

Selected compilation of Lunar Orbiter photographs showing salient features of lunar surface.

NASA SP-200
N70-30817 156 pp
Avail GPO 1970

Analysis of Apollo 8 Photography and Visual Observations

Apollo 8 observations of lunar topography.

NASA SP-201
N70-14366 403 pp
Avail GPO 1969

Aerospace Food Technology

Operational and technological problems of improvement in space flight feeding for future manned space missions. Conference, April 1969.

NASA SP-202
N70-33835 215 pp
Avail NTIS 1970

Introduction to Abstract Analysis

M. E. Goldstein, B. M. Rosenbaum

Introduction to abstract analysis by definitions and proofs.

NASA SP-203
N70-21801 257 pp
Avail GPO 1969

The Experiments of Biosatellite II

J. F. Saunders

Experiments with invertebrates, plants, and cellular systems on Biosatellite II flight.

NASA SP-204
N72-20048 358 pp
Avail GPO 1971

Biotechnology

Biotechnological problems on man-machine systems required for long duration space flights. Conference, August 1967.

NASA SP-205
N71-28526 283 pp
Avail GPO 1971

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Lunar Orbiter Photographic Atlas of the Moon

D. E. Bowker, J. K. Hughes

Atlas of reconstructed lunar photographs taken by Lunar Orbiters during 1966 and 1967.

NASA SP-206
N73-13879 723 pp
Avail GPO 1971

Basic Aerodynamic Noise Research

I. R. Schwartz

Aerodynamic noise related to aircraft propulsion systems. Conference, July 1969.

NASA SP-207
N70-22850 540 pp
Avail GPO 1969

The Prevention of Electrical Breakdown in Spacecraft

D. Burrowbridge, F. W. Paul

NASA SP-208
N70-18656 103 pp
Avail NTIS 1969

Applications of Research on Human Decision Making

R. M. Patton, J. A. Swets, T. A. Tanner, Jr.

Human decision making in manned space flight including topics of memory models, signal detection, and pilot performance. Symposium, February 1968.

NASA SP-209
N70-22743 198 pp
Avail GPO 1970

Electric Propulsion Mission Analysis Nomenclature and Terminology

Terminology for establishing system parameters of electric propulsion mission analysis.

NASA SP-210
N70-11179 15 pp
Avail NTIS 1969

Future Fields of Control Application

Application of control theory to production engineering, transportation systems, urban development, biological oceanography, mass communications, and socio-economic problems. Conference, February 1969.

NASA SP-211
N69-39957 144 pp
Avail NTIS 1969

Progress of NASA Research on Warm Fog Properties and Modification Concepts

Research on warm fog properties and dispersal concepts. Symposium, February 1969.

NASA SP-212
N69-39526 127 pp
Avail NTIS 1969

A Long-Range Program in Space Astronomy: Position Paper of the Astronomy Missions Board

R. O. Doyle

Potential for advancement of astronomy by space programs.

NASA SP-213
N69-41150 316 pp
Avail GPO 1969

Apollo 11: Preliminary Science Report

Preliminary scientific observations of Apollo 11 mission.

NASA SP-214
N70-10030 209 pp
Avail NTIS 1969

Fifth Annual NASA-University Conference on Manual Control

Studies on display systems, optimal control methods, human performance theory, and neuromuscular models. Conference, March 1969.

NASA SP-215
N70-30877 720 pp
Avail NTIS 1970

Compressible Turbulent Boundary Layers

Compressibility of turbulent boundary layers: skin friction, heat transfer, flow velocity, temperature distribution, pressure gradients, and aerodynamic drag prediction methods. Conference, December 1968.

NASA SP-216
N70-10426 572 pp
Avail NTIS 1969

Optical Space Communication

S. Karp, R. S. Kennedy

Results of workshop on optical communication systems for space applications.

NASA SP-217
N70-18087 154 pp
Avail NTIS 1969

Analysis of a Jet in a Subsonic Crosswind

Jet exhaust flow effects on aerodynamic characteristics of V/STOL aircraft during transition flight. Conference, September 1969.

NASA SP-218
N70-11826 242 pp
Avail NTIS 1969

Status of Passive Inflatable Falling-Sphere Technology for Atmospheric Sensing to 100 km

Symposium, September 1969.

NASA SP-219
N70-18570 307 pp
Avail NTIS 1969

NASA Acoustically Treated Nacelle Program

Program to reduce jet aircraft noise. Conference, October 1969.

NASA SP-220
N70-13901 160 pp
Avail NTIS 1969

The NASTRAN Theoretical Manual

R. H. MacNeal

Finite element computer program for structural analysis.

The NASTRAN Theoretical Manual (Level 16)

NASA SP-221 (03)
N79-27531 750 pp
Avail NTIS 1976

The NASTRAN Theoretical Manual (Level 17)

NASA SP-221 (04)
N81-71596 335 pp
Avail NTIS 1979

The NASTRAN Theoretical Manual (Level 17.5)

NASA SP-221 (05)
N81-74264 240 pp
Avail NTIS 1978

The NASTRAN User's Manual

C. W. McCormick

User manual for NASA structural analysis program to describe structural modeling techniques and computer programming operations.

NASA SP-222
N70-41755 812 pp
Avail NTIS 1970

The NASTRAN User's Manual (Level 15.0)

NASA SP-222 (01)
N72-29921 1540 pp
Avail NTIS 1973

The NASTRAN User's Manual (Level 16)

NASA SP-222 (03)
N78-29506 1260 pp
Avail NTIS 1976

The NASTRAN User's Manual (Level 17)

NASA SP-222 (04)
N80-26694 867 pp
Avail NTIS 1979

The NASTRAN User's Manual (Level 17.5)

NASA SP-222 (05)
N81-71595 715 pp
Avail NTIS 1980

The NASTRAN Programmer's Manual

F. J. Douglas

Digital computer programs for analysis of large complex structures.

NASA SP-223
N70-43143 1514 pp
Avail COSMIC 1970

The NASTRAN Programmer's Manual (Level 15.0)

NASA SP-223 (01)
N73-17892 2309 pp
Avail COSMIC 1972

The NASTRAN Programmer's Manual (Level 16)

NASA SP-223 (03)
N78-29505 3444 pp
Avail NTIS 1976

The NASTRAN Programmer's Manual (Level 17.0)

NASA SP-223 (04)
N81-71848 1675 pp
Avail NTIS 1977

The NASTRAN Programmer's Manual (Level 17.5)

NASA SP-223 (05)
N81-71594 845 pp
Avail NTIS 1978

The NASTRAN Demonstration Problem Manual

NASA SP-224
N70-41756 134 pp
Avail COSMIC 1970

The NASTRAN Demonstration Problem Manual (Level 15.0)

NASA SP-224 (01)
N72-29919 187 pp
Avail COSMIC 1972

The NASTRAN Demonstration Problem Manual (Level 16)

NASA SP-224 (03)
N79-28611 259 pp
Avail NTIS 1976

The NASTRAN Demonstration Problem Manual (Level 17.0)

NASA SP-224 (04)
N81-71593 415 pp
Avail NTIS 1977

The NASTRAN Demonstration Problem Manual (Level 17.5)

NASA SP-224 (05)
N81-71592 185 pp
Avail NTIS 1980

Mariner-Mars 1969: A Preliminary Report

Scientific data from Mariners 6 and 7 Mars flyby missions during 1969.

NASA SP-225
N70-18343 148 pp
Avail NTIS 1969

#89

Plasmas and Magnetic Fields in Propulsion and Power Research

Conference, October 1969.

NASA SP-226
N70-18726 253 pp
Avail NTIS 1970

Aerospace Structural Materials

Development of aerospace structural materials: heat-resistant alloys, refractory materials, transition metals, and composite materials. Conference, November 1969.

NASA SP-227
N70-20860 334 pp
Avail NTIS 1970

Analytic Methods in Aircraft Aerodynamics

Analysis of aircraft aerodynamic characteristics. Symposium, October 1969.

NASA SP-228
N70-21351 750 pp
Avail NTIS 1970

Proceedings of the 7th Annual Meeting of the Working Group on Extraterrestrial Resources

Lunar water detection and removal, soil adhesion and friction, and other lunar and planetary resources recovery. Conference, July 1969.

NASA SP-229
N70-39276 148 pp
Avail GPO 1970

Ecological Surveys from Space

Spaceborne photography using different combinations of film and filters for Earth resources surveys.

NASA SP-230
N70-26981 80 pp
Avail GPO 1970

EXAMETNET Data Report Series Annual Report, 1968

Meteorological rocket launchings and data dissemination for 1968 from EXAMETNET.

NASA SP-231
N70-29741 184 pp
Avail NTIS 1970

Analysis of Apollo 10 Photography and Visual Observations

Lunar geology, crater, and volcanic feature analysis from Apollo 10 visual observations and photo interpretations.

NASA SP-232
N71-27871 231 pp
Avail GPO 1971

Optical Telescope Technology

Design optics and technology for large spaceborne astronomical telescopes. Workshop, May 1969.

NASA SP-233
N70-36676 795 pp
Avail NTIS 1970

Portable Life Support Systems

Portable life support and environmental control systems. Conference, May 1969.

NASA SP-234
N70-28501 380 pp
Avail NTIS 1970

Apollo 12: Preliminary Science Report

Preliminary scientific analyses of Apollo 12 ALSEP data, lunar photographs, and returned materials.

NASA SP-235
N70-35271 235 pp
Avail NTIS 1970

Research on Uranium Plasmas and Their Technological Applications

R. T. Schneider, K. Thom

Uranium plasmas applied to nuclear rocket engines, MHD generators, nuclear lasers, and plasma stability and flow. Symposium, January 1970.

NASA SP-236
N71-33626 503 pp
Avail GPO 1971

Interdisciplinary Approach to the Lubrication of Concentrated Contacts

P. M. Ku

Lubrication, wear, and design aspects of rolling contact bearings. Symposium, July 1969.

NASA SP-237
N71-26826 595 pp
Avail GPO 1970

Apollo 11 Mission Report

Apollo 11 postflight analysis and mission report.

NASA SP-238
N71-25042 228 pp
Avail NTIS 1970

Kinetics and Thermodynamics in High-Temperature Gases

Conference on kinetics and thermodynamics of combustion and high-temperature gases. Conference, March 1970.

NASA SP-239
N70-32106 150 pp
Avail NTIS 1970

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The Mixed State of Superconductors

W. R. Hudson

Mathematical models for mixed state of superconductors.

NASA SP-240
N71-10415 73 pp
Avail GPO 1970

Atlas and Gazeteer of the Near Side of the Moon

G. L. Gutschewski, D. C. Kinsler, E. Whitaker

Atlas of annotated Lunar Orbiter 4 photographs of near side of Moon, with gazeteer.

NASA SP-241
N72-18820 539 pp
Avail GPO 1971

Guide to Lunar Orbiter Photographs

T. P. Hansen

Lunar Orbiter photographs and maps, missions 1 through 5.

NASA SP-242
N71-36179 254 pp
Avail GPO 1970

Introduction to Experimental Techniques of High-Energy Astrophysics

H. Oegelman, J. R. Wayland

Measurements of cosmic rays and high-energy extraterrestrial particles.

NASA SP-243
N71-11415 259 pp
Avail NTIS 1970

Power Processing

F. C. Schwarz

Electrical engineering aspects of electric power processing and component technology.

NASA SP-244
N72-15229 53 pp
Avail GPO 1971

Recent Advances in Refractory Alloys for Space Power Systems Conference Papers

Evaluation of refractory tantalum-, tungsten-, niobium-, and molybdenum-based alloys for space power systems applications. Conference, June 1969.

NASA SP-245
N71-13301 299 pp
Avail NTIS 1970

Lunar Photographs From Apollos 8, 10, and 11

R. G. Musgrove

A catalog.

NASA SP-246
N71-29260 24 pp
Avail GPO 1971

The Development of Cryogenic Storage Systems for Space Flight

R. K. Allgeier, Jr., M. L. Davis, T. G. Rogers, et al.

Development of cryogenic storage systems for manned space flight.

NASA SP-247
N71-30910 132 pp
Avail GPO 1970

Holographic Instrumentation Applications

R. M. Brown, B. Ragent

Investigating possibilities and limitations of applying holographic techniques to aerospace technology. Conference, January 1970.

NASA SP-248
N71-12776 249 pp
Avail NTIS 1970

Cosmic Gamma Rays

F. W. Stecker

Cosmic gamma ray production processes, galactic and extragalactic gamma rays, and cosmology.

NASA SP-249
N71-24764 231 pp
Avail GPO 1971

This Island Earth

O. W. Nicks

Spaceborne photographs of Earth atmosphere, lands, and waters with photographs of Sun, Moon, and planets.

NASA SP-250
N71-12566 192 pp
Avail GPO 1970

Significant Accomplishments in Science and Technology: Goddard Space Flight Center, 1969

Aerospace scientific and technological studies in 1969 for satellite systems and spacecraft missions.

NASA SP-251
N71-25256 376 pp
Avail NTIS 1970

The Entry Plasma Sheath and Its Effects on Space Vehicle Electromagnetic Systems. Volume I

Plasma sheath diagnostics and reduction for improved reentry communication. Symposium, October 1970.

NASA SP-252
N71-21101 614 pp
Avail NTIS 1970

Third Conference on Sonic Boom Research

I. R. Schwartz

Prediction methods for sonic boom generation and propagation with overpressure minimization in supersonic transport design and operation. Conference, October 1970.

NASA SP-255
N71-28363 431 pp
Avail GPO 1971

Astronomical Use of Television-Type Image Sensors

V. R. Boscarino

Use of TV-type image sensors in astronomical photometry. Symposium, May 1970.

NASA SP-256
N71-28509 217 pp
Avail NTIS 1971

A Search for Carbon and Its Compounds in Lunar Samples From Mare Tranquillitatis

K. A. Kvenvolden, C. Ponnamperuma

Determination of carbon content of lunar samples from Apollo 11 flight.

NASA SP-257
N71-17964 127 pp
Avail NTIS 1970

Performance and Dynamics of Aerospace Vehicles

Performance, dynamics, and design of aeronautical and space vehicles.

NASA SP-258
N71-24701 670 pp
Avail NTIS 1971

Aircraft Propulsion

Conference, November 1970.

NASA SP-259
N71-19451 463 pp
Avail NTIS 1971

NASTRAN: A Summary of the Functions and Capabilities of the NASA Structural Analysis Computer System

T. G. Butler, D. Michel

Description of general purpose digital computer program for analysis of elastic structures under various loading conditions using finite element method approach.

NASA SP-260
N71-21559 27 pp
Avail NTIS 1971

Preliminary Results From an Operational 90-Day Manned Test of a Regenerative Life Support System

D. C. Grana, A. O. Pearson

Data from 90-day manned test of regenerative life support system in space station simulator. Symposium, November 1970.

NASA SP-261
N71-20951 579 pp
Avail NTIS 1971

Animal Orientation and Navigation

S. R. Galler, K. Schmidt-Koenig, G. J. Jacobs, et al.

Animal orientation and navigation capabilities. Symposium, September 1970.

NASA SP-262
N72-25062 586 pp
Avail GPO 1972

The Mariner 6 and 7 Pictures of Mars

S. A. Collins, Jr.

Mariner 6 and 7 imagery photographs of Mars.

NASA SP-263
N73-13878 168 pp
Avail GPO 1971

Barium Releases at Altitudes Between 200 and 1000 Kilometers: A Joint MPI-NASA Experiment

D. Adamson, H. T. Baber, Jr., K. H. Crumbly

Barium releases from Javelin and Nike-Tomahawk sounding rockets for ion cloud study of Earth electric and magnetic fields.

NASA SP-264
N71-29671 145 pp
Avail NTIS 1971

Report of the Joint DOT-NASA Civil Aviation R&D Policy Study, March 1971

Review of policies affecting civil aviation, problems confronting it, and potential for future contributions to national benefit.

NASA SP-265
N71-30506 104 pp
Avail NTIS 1971

Joint DOT-NASA Civil Aviation Policy Study (Supporting Papers)

Civil aviation research and development projects noting characteristics and growth to date, current problems, future requirements, potential solutions, and recommendations.

NASA SP-266
N71-30507 248 pp
Avail NTIS 1971

Physical Studies of the Minor Planets

T. Gehrels

Astronomical observations of asteroids. Conference, March 1971.

NASA SP-267
N72-25753 713 pp
Avail GPO 1971

The Pioneer Mission to Jupiter

Planning for Pioneer interplanetary missions with Jupiter flyby.

NASA SP-268
N71-32366 48 pp
Avail GPO 1971

Hypogravic and Hypodynamic Environments

M. McCally, R. H. Murray

Aerospace environments, manned space flight, weightlessness simulation, musculoskeletal and cardiovascular systems, bone loss, mineral metabolism, and hematology. Conference, July 1969.

NASA SP-269
N71-33251 380 pp
Avail NTIS 1971

NASA Aircraft Safety and Operating Problems. Volume 1

Conference, May 1971.

NASA SP-270
N71-30756 444 pp
Avail NTIS 1971

Apollo 14 Preliminary Science Report

Lunar topographic, geologic, magnetic field, gravitation, and atmospheric data from Apollo 14 experiments and photography.

NASA SP-272
N71-30953 313 pp
Avail GPO 1971

Computer Program for Calculation of Complex Chemical Equilibrium Composition, Rocket Performance, Incident and Reflected Shocks, and Chapman-Jouguet Detonations

S. Gordon, B. J. McBride

Equations and computer program for calculating chemical equilibria in thermodynamic states of complex systems.

NASA SP-273
N71-37775 250 pp
Avail NTIS 1971

A Compilation of Nondimensional Numbers

N. S. Land

Identification and compilation of named nondimensional numbers used in technical areas.

NASA SP-274
N72-23982 126 pp
Avail GPO 1972

Monitoring Earth Resources from Aircraft and Spacecraft

R. N. Colwell

Procedures and techniques for determining Earth resources from high altitude aircraft and Apollo 9 photographs.

NASA SP-275
N72-18331 203 pp
Avail GPO 1971

Spacecraft Charge Buildup Analysis

H. W. Bilsky, J. V. Gore, M. A. Kasha, et al.

Design and characteristics of spacecraft propulsion system using charge buildup and electric propulsion techniques.

NASA SP-276
N71-32812 40 pp
Avail NTIS 1971

Friction, Wear, and Lubrication in Vacuum

D. H. Buckley

Friction, wear, and lubrication of metals, nonmetal compounds, and polymers in vacuum environment.

NASA SP-277
N72-20451 192 pp
Avail NTIS 1971

The Interplanetary Pioneers. Volume I. Summary

W. R. Corliss

Pioneer space probe project to show history, design, development, flight operations, and results accomplished.

NASA SP-278
N73-14864 135 pp
Avail GPO 1972

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The Interplanetary Pioneers. Volume II. System Design and Development

W. R. Corliss

Pioneer space probe system design and development, ground support system, tracking and communication, and data processing.

NASA SP-279
N73-17882 312 pp
Avail GPO 1972

The Interplanetary Pioneers. Volume III. Operations

W. R. Corliss

Operational aspects of Pioneer program.

NASA SP-280
N73-20882 157 pp
Avail GPO 1972

Seventh Annual Conference on Manual Control

Manual control systems for human operator modeling and display systems in man-machine environments. Conference, June 1971.

NASA SP-281
N73-10104 354 pp
Avail GPO 1972

The Fifth Aerospace Mechanisms Symposium

Structural design principles and mechanical engineering methods for aerospace mechanisms used in orbital and space flights. Conference, June 1970.

NASA SP-282
N72-13391 196 pp
Avail NTIS 1971

Earth Resources Survey Systems

Applications of remote sensing to agriculture, forestry, oceanography, urban development. Workshop, May 1971.

NASA SP-283
N73-16348 359 pp
Avail GPO 1972

Analysis of Surveyor 3 Material and Photographs Returned by Apollo 12

Postflight analysis of parts from Surveyor 3 spacecraft, lunar material, and photographs brought back on Apollo 12 flight.

NASA SP-284
N72-26731 302 pp
Avail GPO 1972

Remote Measurement of Pollution

Remote sensing techniques for measuring gaseous air pollution, water pollution, and particulate air pollution.

NASA SP-285
N72-18324 261 pp
Avail NTIS 1971

Significant Accomplishments in Science: Goddard Space Flight Center, 1970

Research in Earth resources, meteorology, and interplanetary physics. Symposium, January 1971.

NASA SP-286
N72-23324 253 pp
Avail NTIS 1972

What Made Apollo a Success?

Apollo spacecraft development, mission planning, and flight operations.

NASA SP-287
N72-12892 87 pp
Avail NTIS 1971

Vibration of Shells

A. W. Leissa

Vibrational characteristics, mechanical properties, and stress analysis of thin shell structures of various cross sections.

NASA SP-288
N73-26924 435 pp
Avail GPO 1973

Apollo 15: Preliminary Science Report

Apollo 15 flight accomplishments, lunar surface activities, lunar orbital activities, and photographic coverage.

NASA SP-289
N72-22814 502 pp
Avail GPO 1972

Turbine Design and Application

A. J. Glassman

Review of turbine technology including thermodynamics, compressible fluid mechanics, fundamental turbine concepts, and velocity diagram design.

Volume I
NASA SP-290
N72-26685 101 pp
Avail GPO 1972

Volume II
NASA SP-290
N74-33476 152 pp
Avail GPO 1973

Volume III
NASA SP-290
N75-24741 141 pp
Avail GPO 1975

The Transformation of Scientists and Engineers Into Managers

J. A. Bayton, R. L. Chapman

Principal problems and obstacles faced by specialists during the transition period when they are becoming managers.

NASA SP-291
N72-27986 135 pp
Avail GPO 1972

Vehicle Technology for Civil Aviation: The Seventies and Beyond

Technological concepts for future transport aircraft developments in civil aviation. Conference, November 1971.

NASA SP-292
N72-12995 452 pp
Avail NTIS 1971

Experimental InterAmerican Meteorological Rocket Network (EXAMETNET): The First Five Years, 1966–1970

Five-year assessment of EXAMETNET, meteorological rocket network of Argentina, Brazil, and United States for stratospheric soundings.

NASA SP-293
N72-17558 58 pp
Avail NTIS 1972

Remote Sensing of the Chesapeake Bay

Remote sensing of resources contained in Chesapeake Bay to determine effects of environmental pollution. Conference, April 1971.

NASA SP-294
N72-26272 176 pp
Avail GPO 1972

Significant Accomplishments in Technology: Goddard Space Flight Center, 1970

J. M. Bridger

Technological developments in satellite communications, tracking, antenna arrays, attitude control, orbit calculations, and instrumentation. Symposium, January 1971.

NASA SP-295
N72-25755 214 pp
Avail NTIS 1972

Rocket/Nimbus Sounder Comparison (RNSC)

Radiance and temperature differences between rocket and Nimbus satellite systems.

NASA SP-296
N72-19892 46 pp
Avail NTIS 1972

Numerical Marching Techniques for Fluid Flows With Heat Transfer

R. W. Hornbeck

Formulations and solutions for fluid flow problems with associated heat transfer.

NASA SP-297
N74-12992 349 pp
Avail GPO 1973

Space Simulation

Symposium, May 1972.

NASA SP-298
N72-22250 1093 pp
Avail GPO 1972

Holography and Optical Filtering

Holography and optical filtering techniques for structural analysis, material tests, and astronomical observation. Conference, May 1971.

NASA SP-299
N73-25540 195 pp
Avail GPO 1973

Physics of the Solar System

S. I. Rasool

Solar system, solar physics, planetary atmospheres and structure, and origin of planets and Moon.

NASA SP-300
N72-25810 519 pp
Avail GPO 1972

Supercritical Wing Technology: A Progress Report on Flight Evaluations

Supercritical wing development and results of F-8 and T-2C test programs. Symposium, February 1972.

NASA SP-301
N77-85474 141 pp
Avail NTIS 1972

Second Conference on Portable Life Support Systems

Portable life support systems for human protection. Conference, May 1971.

NASA SP-302
N72-27106 350 pp
Avail NTIS 1972

The Quiet Sun

E. G. Gibson

Textbook of solar physics.

NASA SP-303
N73-25846 344 pp
Avail GPO 1973

Fluid Mechanics, Acoustics, and Design of Turbomachinery

B. Lakshminarayana, W. R. Britsch, W. S. Gearhart

Part 1

NASA SP-304
N75-11174 419 pp
Avail GPO 1974

Part 2

NASA SP-304
N75-11191 447 pp
Avail GPO 1974

Physics of the Space Environment

R. E. Smith, S. T. Wu

Upper atmospheric physics and chemistry, auroras, and solar flare forecasting. Colloquium, 1971.

NASA SP-305
N72-31384 176 pp
Avail NTIS 1972

Compositions of Major and Minor Minerals in Five Apollo 12 Crystalline Rocks

B. M. French, K. F. J. Heinrich, P. D. Loman, Jr., et al.

Mineral analysis of lunar samples of crystalline rocks from Apollo 12 flight.

NASA SP-306
N73-16837 145 pp
Avail NTIS 1972

Report of the Tape Recorder Action Plan Committee, March 13, 1972

Failure analysis of tape recorders for spacecraft applications.

NASA SP-307
N73-15225 52 pp
Avail NTIS 1972

Solar Wind

C. P. Sonett, P. J. Coleman, Jr., J. M. Wilcox

Magnetic structure of interplanetary and solar magnetic fields and solar wind. Conference, March 1971.

NASA SP-308
N73-10760 728 pp
Avail GPO 1972

Advanced Approaches to Fatigue Evaluation

Fatigue test evaluation for aircraft structures. Symposium, May 1971.

NASA SP-309
N72-29895 675 pp
Avail NTIS 1972

The Scientific Results From the Orbiting Astronomical Observatory (OAO-2)

A. D. Code

Scientific observations by OAO of solar system, interstellar matter, stellar atmospheres, and galactic and extragalactic systems. Conference, August 1971.

NASA SP-310
N72-31810 597 pp
Avail NTIS 1972

Aircraft Engine Noise Reduction

Conference, May 1972.

NASA SP-311
N73-12012 321 pp
Avail NTIS 1972

Significant Accomplishments in Sciences: Goddard Space Flight Center, 1971

Research on remote sensing applications and satellite observation data. Symposium, November 1971.

NASA SP-312
N73-17934 220 pp
Avail NTIS 1972

Space for Mankind's Benefit

J. Vonputtkamer, T. J. McCullough

Conference, November 1971.

NASA SP-313
N73-13829 415 pp
Avail GPO 1972

Fifth Symposium on the Role of the Vestibular Organs in Space Exploration

Vestibular problems of manned space flight for weightlessness and reduced gravity conditions with emphasis on space station development, including morphological studies. Symposium, August 1970.

NASA SP-314
N74-18754 275 pp
Avail GPO 1973

Apollo 16 Preliminary Science Report

Preliminary results of Apollo 16 investigations.

NASA SP-315
N73-21729 636 pp
Avail GPO 1972

Advanced Methods for the Solution of Differential Equations

M. E. Goldstein, W. H. Braun

NASA SP-316
N74-10569 359 pp
Avail GPO 1973

Stellar Chromospheres

S. D. Jordan, E. H. Avrett

Stellar chromospheres and their compositions. Colloquium, February 1972.

NASA SP-317
N73-13792 318 pp
Avail GPO 1973

Interdisciplinary Approach to Liquid Lubricant Technology

P. M. Ku

Requirements and functions of liquid lubricants, mineral oils, greases, theory of rheology, mechanics and thermodynamics in lubrication, environmental capability of liquid lubricants, wear corrosion and erosion. Symposium, January 1972.

NASA SP-318
N74-12219 569 pp
Avail GPO 1973

Evolutionary and Physical Properties of Meteoroids

C. L. Hemenway, P. M. Millman, A. F. Cook

Astrophysical models for meteoroid formation and stellar and planetary evolutions developed from simulation composition studies. Colloquium, June 1971.

NASA SP-319
N74-19436 361 pp
Avail GPO 1973

STOL Technology

Aerodynamic characteristics and short haul transportation applications. Conference, October 1972.

NASA SP-320
N73-32934 516 pp
Avail NTIS 1972

Free Turbulent Shear Flows

S. F. Birch

Development of data, including two-dimensional shear layers and axisymmetric jets. Conference, July 1972.

Volume I. Conference Proceedings

NASA SP-321
N73-28154 763 pp
Avail NTIS 1973

Volume II. Summary of Data

NASA SP-321
N73-27213 94 pp
Avail NTIS 1973

A Review of Methods for Predicting Air Pollution Dispersion

J. J. Mathis, Jr., W. L. Grose

Air pollution models, and problem areas in air pollution dispersion modeling.

NASA SP-322
N73-20658 46 pp
Avail NTIS 1973

Accelerated Testing of Space Batteries

J. McCallum, R. E. Thomas, J. H. Waite

Accelerated life test program for space batteries.

NASA SP-323
N73-21958 220 pp
Avail NTIS 1973

Project Management in NASA: The System and the Men

R. H. Pontious, L. B. Barnes

NASA SP-324
N74-15692 137 pp
Avail GPO 1973

The Orbital Mechanics of Flight Mechanics

R. S. Dunning

Reference handbook on modern dynamic orbit theory.

NASA SP-325
N74-12482 164 pp
Avail NTIS 1973

Significant Accomplishments in Technology: Goddard Space Flight Center, 1972

Technology utilization in spacecraft guidance, ground operations, communications and navigation systems, and sensor development. Symposium, November 1972.

NASA SP-326
N73-27816 186 pp
Avail NTIS 1973

Significant Results Obtained From the Earth Resources Technology Satellite-1. Volume I: Technical Presentations

S. C. Freden, E. P. Mercanti, M. A. Becker

Symposium, March 1973.

NASA SP-327
N73-28207 1686 pp
Avail GPO 1973

Life Beyond Earth and the Mind of Man

R. Berendzen

Social, philosophical, and humanistic impacts of possible existence of extraterrestrial life. Symposium, November 1972.

NASA SP-328
N73-30807 110 pp
Avail GPO 1973

Mars as Viewed by Mariner 9

Photographs of the surface of Mars showing geologic features and effects of atmospheric phenomena.

NASA SP-329
N75-17270 279 pp
Avail GPO 1974

Apollo 17 Preliminary Science Report

Apollo 17 site selection, mission description, geological investigation of landing site, lunar experiments, visual flight flash phenomenon, volcanic studies, mare ridges, remote sensing and photogrammetric studies, astronomical photography.

NASA SP-330
N74-18428 677 pp
Avail GPO 1973

Significant Accomplishments in Sciences: Goddard Space Flight Center, 1972

Space applications research in astronomy and earth physics.

NASA SP-331
N73-31867 223 pp
Avail NTIS 1973

The Gum Nebula and Related Problems

Symposium, May 1971.

NASA SP-332
N73-31731 246 pp
Avail NTIS 1973

Design of Various Fixed-Geometry Water-Lubricated Hydrodynamic Journal Bearings for Maximum Stability

F. T. Schuller

NASA SP-333
N74-11305 101 pp
Avail NTIS 1973

The Viking Mission to Mars

Preview of the mission.

NASA SP-334
N74-34287 82 pp
Avail NTIS 1974

Advanced Scanners and Imaging Systems for Earth Observations

Electromechanical scanners, self-scanned solid state sensors, electron beam images, sensor related technology, user applications.

NASA SP-335
N74-11287 620 pp
Avail GPO 1973

Seventh Conference on Space Simulation

Conference, November 1973.

NASA SP-336
N74-10232 935 pp
Avail GPO 1973

The New Mars: The Discoveries of Mariner 9

W. K. Hartmann, O. Raper

A history of our knowledge of Mars—how we gained it and how it grew.

NASA SP-337
N75-13729 192 pp
Avail GPO 1974

Advanced Electro-Optical Imaging Techniques

S. Sobieski, E. J. Wampler

Symposium, September 1972.

NASA SP-338
N74-17406 134 pp
Avail NTIS 1973

Gamma-Ray Astrophysics

F. W. Stecker, A. I. Trombka

Symposium, May 1973.

NASA SP-339
N74-14465 425 pp
Avail GPO 1973

The Atmosphere of Titan

D. M. Hunten

Spectroscopic and radiometric observations used to form models for the Titan atmospheric composition and circulation.

NASA SP-340
N74-20478 185 pp
Avail NTIS 1974

Atlas of Surveyor 5 Television Data

R. M. Batson, R. Jordan, K. B. Larson

NASA SP-341
N75-14665 609 pp
Avail GPO 1974

High Energy Phenomena on the Sun

R. Ramaty, R. G. Stone

Symposium, September 1972.

NASA SP-342
N74-21440 640 pp
Avail GPO 1973

The Rings of Saturn

F. D. Palluconi, G. H. Pettengill

Preview of Mariner Jupiter-Saturn '77 space project. Workshop, August 1973.

NASA SP-343
N75-17236 221 pp
Avail GPO 1974

Objectives and Models of the Planetary Quarantine Program

M. Werber

Objectives of the planetary quarantine program and the history of early contamination prevention efforts.

NASA SP-344
N75-25604 140 pp
Avail GPO 1975

Evolution of the Solar System

H. Alfvén, G. Arrhenius

Physical process and experimental studies related to the origin and evolution of the solar system.

NASA SP-345
N77-12959 611 pp
Avail GPO 1976

Aeroacoustics

M. E. Goldstein

NASA SP-346
N74-35118 440 pp
Avail NTIS 1974

Aerodynamic Analyses Requiring Advanced Computers

Conference, March 1975.

Part 1

NASA SP-347
N76-10007 710 pp
Avail NTIS 1975

Part 2

NASA SP-347
N76-10031 779 pp
Avail NTIS 1975

Radiative Property Data for Venusian Entry: A Compendium

J. J. Jones, R. E. Boughner, K. V. Haggard, et al.

NASA SP-348
N75-12880 85 pp
Avail NTIS 1974

Pioneer Odyssey: Encounter With a Giant

R. O. Fimmel, W. Swindell, E. Burgess

Pioneer Jupiter mission objectives, hazards, spacecraft design, communication techniques, mission accomplishments, scientific payloads. (The Pioneer flyby of Saturn is included in NASA SP-446.)

NASA SP-349
N75-10130 183 pp
Avail GPO 1974

Apollo Expeditions to the Moon

E. M. Cortright

From planning stages through Apollo 17. The objectives and accomplishments of each mission are discussed.

NASA SP-350
N76-12956 324 pp
Avail GPO 1975

Third Earth Resources Technology Satellite-1 Symposium. Volume 1: Technical Presentations, Section A

S. C. Freden, E. P. Mercanti, M. A. Becker

Symposium, December 1973.

NASA SP-351
N74-30705 992 pp
Avail GPO 1974

Third Earth Resources Technology Satellite-1 Symposium. Volume 1: Technical Presentations, Section B

S. C. Freden, E. P. Mercanti, M. A. Becker

NASA SP-351
N74-30774 936 pp
Avail GPO 1974

Rotorcraft Dynamics

A dynamic structural analysis of rotary winged aircraft considering helicopter vibration and loads. Conference, February 1974.

NASA SP-352
N74-34489 370 pp
Avail NTIS 1974

Corn Blight Watch Experiment. Summary Report

NASA SP-353
N74-33861 17 pp
Avail GPO 1974

DOT/NASA Comparative Assessment of Brayton Engines for Guideway Vehicles and Buses

Volume I. Summary

NASA SP-354
N75-18577 47 pp
Avail NTIS 1975

Volume II. Analysis and Results

NASA SP-354
N75-22745 284 pp
Avail NTIS 1975

Comet Kohoutek

G. A. Gary

Tail form, structure, and evolution; hydroxyl related observations; molecules and atoms in the coma and tail; photometry and radiometry; spacecraft and ground-based observation data. Color photographs. Workshop, June 1974.

NASA SP-355
N76-10938 281 pp
Avail NTIS 1975

Third Earth Resources Technology Satellite-1 Symposium. Volume II: Summary of Results

S. C. Freden, E. P. Mercanti, D. B. Friedman

Results and applications of ERTS-1 data for solving resource management problems. Symposium, December 1973.

NASA SP-356
N75-10549 184 pp
Avail GPO 1974

Third Earth Resources Technology Satellite-1 Symposium. Volume III: Discipline Summary Report

S. C. Freden, E. P. Mercanti, D. B. Friedman

Agriculture, forestry, and range resources; land use and mapping; mineral resource, geological structure, and landform surveys; water and marine resources; environmental surveys; interpretation techniques. Symposium, December 1973.

NASA SP-357
N74-33873 159 pp
Avail GPO 1974

Wave Climate Model of the Mid-Atlantic Shelf and Shoreline (Virginian Sea): Model Development, Shelf Geomorphology, and Preliminary Results

V. Goldsmith, W. D. Morris, R. J. Byrne, et al.

Computerized wave climate model that applies linear wave theory and shelf depth information to predict wave behavior.

NASA SP-358
N75-23072 153 pp
Avail NTIS 1974

Monterey Bay Study

R. M. Bizzell, L. C. Wade

Usefulness of Landsat system in the planning and development of resource systems on Earth.

NASA SP-359
N75-30629 33 pp
Avail GPO 1975

Mission to Earth: Landsat Views the World

N. M. Short, P. D. Lowman, Jr., S. C. Freden, et al.

Four hundred color plates showing natural land features.

NASA SP-360
N77-17532 926 pp
Avail GPO 1976

Educator's Guide for Mission to Earth: Landsat Views the World

M. A. Tindal

Information for using Landsat imagery to aid in teaching earth science and geology, environmental studies, geography, social and urban studies.

Supplement to NASA SP-360
N80-10537 56 pp
Avail GPO 1978

Significant Accomplishments in Science and Technology: Goddard Space Flight Center, 1973

Cometary physics, x-ray and gamma ray astronomy, solar and terrestrial physics, spacecraft technology, Earth Resources Technology Satellite (Landsat), Earth and ocean physics, communications and navigation, mission operations and data systems, network systems and operations. Symposium, December 1973.

NASA SP-361
N75-16422 360 pp
Avail NTIS 1975

Apollo Over the Moon: A View From Orbit

H. Masursky, G. W. Colton, F. El-Baz, et al.

Photographs taken by the Apollo metric camera system.

NASA SP-362
N78-21174 263 pp
Avail GPO 1978

Technology and the Neurologically Handicapped

Bioengineering approaches to the treatment of neurologically handicapped persons; neurophysiological aspects of control systems and man-machine integration. Conference, September 1971.

NASA SP-363
N75-19975 278 pp
Avail NTIS 1974

Data Collection System: Earth Resources Technology Satellite-1

S. Cooper, P. T. Ryan

Sensors, interface hardware, power supplies, environmental enclosures, data transmission, processing and distribution, maintenance and integration in resources management systems. Conference, May 1973.

NASA SP-364
N75-16050 127 pp
Avail NTIS 1975

National Geodetic Satellite Program

S. W. Henrikson

Instruments used to obtain data, description of data, data processing theory, evaluation of results.

Part 1
NASA SP-365
N78-11545 523 pp
Avail NTIS 1977

Part 2
NASA SP-365
N78-11552 509 pp
Avail GPO 1977

Possible Relationships Between Solar Activity and Meteorological Phenomena

W. R. Bandeen, S. P. Maran

Symposium, November 1973.

NASA SP-366
N76-14528 263 pp
Avail GPO 1975

Introduction to the Aerodynamics of Flight

T. A. Talay

The atmosphere, fluid flow, subsonic flow effects, transonic flow, supersonic flow, aircraft performance, and stability and control.

NASA SP-367
N76-11043 203 pp
Avail NTIS 1975

Biomedical Results From Apollo

R. S. Johnston, L. F. Dietlein, C. A. Berry

Crew health and inflight monitoring, preflight and postflight medical testing, inflight experiments, quarantine, and life support systems.

NASA SP-368
N76-12668 592 pp
Avail GPO 1975

Forced-Flow Once-Through Boilers: NASA Research

J. R. Stone, V. H. Gray, O. A. Gutierrez

Research on boilers for use in spacecraft electrical power generation systems.

NASA SP-369
N75-32388 142 pp
Avail NTIS 1975

The Soviet-American Conference on Cosmochemistry of the Moon and Planets

J. H. Pomeroy, N. J. Hubbard

Thermal history of the Moon; lunar gravitation and magnetism; chronology of the moon, planets, and meteorites; hypotheses about the origin and evolution of the Moon and planets; data on Mercury, Venus, Mars, Jupiter. Conference, June 1974.

Part 1
NASA SP-370
N78-12925 503 pp
Avail GPO 1977

Part 2
NASA SP-370
N78-12958 423 pp
Avail GPO 1977

Large Scale Dynamic Systems

Large scale dynamic systems in terms of modern control theory in the fields of aeronautics, water resources, and electrical power. Workshop, August 1974.

NASA SP-371
N75-29845 206 pp
Avail NTIS 1975

NASA-University Conference on Aeronautics

Aeronautics and the education of the engineers, technical trends in aeronautics, and the role of the university in aeronautics. Conference, October 1974.

NASA SP-372
N75-29001 430 pp
Avail NTIS 1975

Free Radical OH: A Molecule of Astrophysical and Aeronomic Interest

H. Mohan, Shardanand

Rotational-vibrational transitions, dissociation and ionization processes, and spectral characteristics.

NASA SP-373
N75-29960 90 pp
Avail NTIS 1975

Foundations of Space Biology and Medicine

M. Calvin, O. G. Gazenko

Volume I. Space as a Habitat

NASA SP-374
N76-26799 458 pp
Avail GPO 1975

Volume II. Ecological and Physiological Bases of Space Biology and Medicine

Book 1

NASA SP-374
N76-26809 415 pp
Avail GPO 1975

Book 2

NASA SP-374
N76-26819 756 pp
Avail GPO 1975

Volume III. Space Medicine and Biotechnology

NASA SP-374
N76-26829 542 pp
Avail GPO 1975

The Use of Lasers for Hydrographic Studies

H. H. Kim, P. T. Ryan

Use of remote laser sensors in water pollution detection and identification, coastal environment monitoring, bathymetric depth sounding. Symposium, September 1973.

NASA SP-375
N75-30525 202 pp
Avail NTIS 1975

Active Microwave Workshop Report

R. E. Matthews

Data on active microwave systems. Remote sensing of Earth/land features, ocean/atmosphere interactions, equipment and instrument technology. Workshop, July 1974.

NASA SP-376
N76-11811 513 pp
Avail GPO 1975

Biomedical Results From Skylab

R. S. Johnston, L. F. Dietlein

Physiological responses of space crew to prolonged space flight stress.

NASA SP-377
N77-33780 502 pp
Avail GPO 1977

Numerical Studies of Incompressible Viscous Flow in a Driven Cavity

Numerical methods that can be applied to the Navier-Stokes equations; cubic spline procedure.

NASA SP-378
N76-16023 132 pp
Avail NTIS 1975

Eighth Conference on Space Simulation

State of the art in space simulation, spacecraft contamination, thermal control systems, biosciences, flammability. Conference, November 1975.

NASA SP-379
N76-11113 859 pp
Avail NTIS 1975

Skylab Explores the Earth

Experiments to determine the types of data obtainable through visual observation by Skylab crews.

NASA SP-380
N77-28548 531 pp
Avail GPO 1977

Aeronautical Propulsion

Engine design, exhaust gases, use of composites, bearings, supersonic and hypersonic propulsion. Conference, May 1975.

NASA SP-381
N75-31068 476 pp
Avail NTIS 1975

The Atmosphere of Venus

J. E. Hansen

Dynamics, structure, chemistry and evolution of the atmosphere of Venus. Conference, October 1974.

NASA SP-382
N76-10933 202 pp
Avail NTIS 1975

Cepheid Modeling

D. Fischel, W. M. Sparks

Mathematical techniques used to model the instability behavior of cepheid variables. Conference, July 1974.

NASA SP-383
N76-10951 338 pp
Avail NTIS 1975

Significant Accomplishments in Science and Technology: Goddard Space Flight Center, 1974

Earth resources and astronomy; photographs of satellite observations. Symposium, December 1974.

NASA SP-384
N76-10934 208 pp
Avail NTIS 1975

Proceedings of the 1958 Flight Flutter Testing Symposium

Theory, methods, and techniques of flight flutter testing. Symposium, May 1958.

NASA SP-385
N76-10095 196 pp
Avail NTIS 1975

Outlook for Space: Report to the NASA Administrator by the Outlook for Space Study Group

Future activities in the context of national needs, 1980–2000.

NASA SP-386
N76-18004 373 pp
Avail GPO 1976

A Forecast of Space Technology: 1980–2000

Information management, scientific resources, management of energy and matter.

NASA SP-387
N76-18005 320 pp
Avail GPO 1976

Analytical Applications of Bioluminescence and Chemiluminescence

E. W. Chappelle, G. L. Picciolo

NASA SP-388
N76-15538 119 pp
Avail NTIS 1975

X-Ray Binaries

Satellite x-ray experiments and ground-based programs aimed at observation of x-ray binaries. Symposium, October 1975.

NASA SP-389
N76-26056 718 pp
Avail NTIS 1976

Applications of Computer Graphics in Engineering

Conference, October 1975.

NASA SP-390
N76-16812 661 pp
Avail NTIS 1975

Operational Applications of Satellite Snowcover Observations

A. Rango

Snow measurements made by Landsat and NOAA satellites were used to help forecast runoff and flooding. Conference, August 1975.

NASA SP-391
N76-16561 430 pp
Avail NTIS 1975

The Space Telescope

Mission planning, telescope performance, optical detectors, mirror construction, pointing and control systems, data management, and maintenance of the telescope. Meeting, August 1975.

NASA SP-392
N76-23110 240 pp
Avail GPO 1976

The Study of Comets

B. Donn, M. J. Mumma, W. M. Jackson, et al.

Photometry and spectrum analysis of Kohoutek comet and comet tails. Colloquium, November 1974.

Part 1

NASA SP-393
N76-21052 557 pp
Avail GPO 1976

Part 2

NASA SP-393
N76-21075 557 pp
Avail GPO 1976

A Survey of Computational Aerodynamics in the United States

A. Gessow, D. J. Morris

Programs in theoretical and computational aerodynamics, including application for boundary layer flow, Navier-Stokes turbulence modeling, internal flows, two-dimensional configurations, subsonic and supersonic aircraft, transonic aircraft, and the Space Shuttle.

NASA SP-394
N78-11007 49 pp
Avail NTIS 1977

53

Second NASA Conference on Laser Energy Conversion

K. W. Billman

The possible transmission of high-powet laser beams over long distances and their conversion to thrust, electricity, and other useful forms of energy. Conference, January 1975.

NASA SP-395
N76-21505 196 pp
Avail NTIS 1976

Solar-Wind Interaction With the Planets Mercury, Venus, and Mars

N. F. Ness

Magnetic field and plasma measurements in the environments of Mars, Mercury, and Venus. Seminar, November 1975.

NASA SP-397
N76-25125 172 pp
Avail NTIS 1976

The 1976 Standard Atmosphere Above 86-km Altitude

R. A. Minzner

Development of an atmospheric model, temperature and composition profiles.

NASA SP-398
N77-10755 77 pp
Avail NTIS 1976

Skylab EREP Investigations Summary

W. J. Pierson

EREP data on agriculture, cartography, geology, hydrology, oceans atmosphere.

NASA SP-399
N79-17279 387 pp
Avail GPO 1978

Skylab, Our First Space Station

L. F. Belew

Skylab's role in the study of solar and stellar astronomy, data on solar physics and space processing experiments.

NASA SP-400
N77-27155 176 pp
Avail GPO 1977

Skylab, Classroom in Space

L. B. Summerlin

Student-designed Skylab experiments and demonstrations on the effect of weightlessness.

NASA SP-401
N77-29189 190 pp
Avail GPO 1977

A New Sun: The Solar Results From Skylab

J. A. Eddy

The Sun as seen by Skylab's cameras.

NASA SP-402
N79-22991 220 pp
Avail GPO 1979

Volcanic Features of Hawaii. A Basis for Comparison With Mars

M. H. Carr, R. Greeley

Similarities and differences between the volcanoes of Hawaii and those on Mars. Photographs.

NASA SP-403
N80-23912 216 pp
Avail GPO 1980

Skylab's Astronomy and Space Sciences

C. A. Lundquist

Skylab's multidisciplinary capabilities, including observations of stars and galaxies, energetic particles, interplanetary dust, Comet Kohoutek.

NASA SP-404
N79-34118 126 pp
Avail GPO 1979

Vortex-Lattice Utilization

Implementation and application of the vortex-lattice method to aerodynamic design and analysis. Workshop, May 1976.

NASA SP-405
N76-28163 409 pp
Avail NTIS 1976

Powered-Lift Aerodynamics and Acoustics

Conference on high-lift aerodynamics, high-speed and cruise aerodynamics, acoustics, propulsion aerodynamics and acoustics, aerodynamic and acoustic loads, and full-scale and flight research. May 1976.

NASA SP-406
N78-24046 502 pp
Avail NTIS 1976

Space Shuttle

Flight system, mission profile, economic and social benefits, description of vehicle.

NASA SP-407
N76-31268 97 pp
Avail GPO 1976

Viking 1: Early Results

Text and photos from the first weeks after the Viking 1 landing on Mars.

NASA SP-408
N76-28296 76 pp
Avail NTIS 1976

Wake Vortex Minimization

Research on the effect of wing span, wing flaps, spoilers, splines, and engine thrust on vortex attenuation. Symposium, February 1976.

NASA SP–409
N78-12017 403 pp
Avail NTIS 1977

Satellite-Derived Global Oceanic Rainfall Atlas

M. S. V. Rao, W. V. Abott III, J. S. Theon

NASA SP–410
N77-19709 336 pp
Avail GPO 1976

The Apollo-Soyuz Test Project Medical Report

A. E. Nicogossian

Clinical aspects and preflight and postflight research studies performed on the astronauts.

NASA SP–411
N77-30735 129 pp
Avail NTIS 1977

Apollo-Soyuz Test Project Summary Science Report

Volume I. Astronomy, Earth Atmosphere and Gravity Field, Life Sciences, and Materials Processing

NASA SP–412
N78-17088 570 pp
Avail NTIS 1977

Volume II. Earth Observations and Photography

F. El-Baz, D. M. Warner

NASA SP–412
N80-10538 700 pp
Avail NTIS 1979

Settlements in Space: A Design Study

R. D. Johnson, C. Holbrow

Concept of how people might permanently sustain life in space on a large scale; design of a system to colonize space.

NASA SP–413
N77-21106 191 pp
Avail GPO 1977

On the Habitability of Mars: An Approach to Planetary Ecosynthesis

M. M. Averner, R. D. Macelroy

Examination of the possibility of utilizing Mars as a habitat for terrestrial life.

NASA SP–414
N77-12718 114 pp
Avail NTIS 1976

Flutter Testing Techniques

Developments in methodology and data analysis techniques for flutter testing in flight and on the ground.

NASA SP–415
N77-21022 483 pp
Avail NTIS 1976

Aircraft Safety and Operating Problems

Terminal area operations, flight dynamics and control, ground operations, atmospheric environment, structures and materials, power plants, noise, human factors engineering. Conference, October 1976.

NASA SP–416
N77-18081 644 pp
Avail NTIS 1976

A Geological Basis for the Exploration of the Planets

R. Greeley, M. H. Carr

Relevance of planetary geology in relation to the origin and evaluation of the solar system and life. Stratigraphy, structural geology, and geochemistry of planets.

NASA SP–417
N77-15961 117 pp
Avail NTIS 1976

Lunar Sample Studies

Technical examination of breccias, basalts, and anorthosites.

NASA SP–418
N77-27053 72 pp
Avail NTIS 1977

The Search for Extraterrestrial Intelligence: SETI

P. Morrison, J. Billingham, J. Wolfe

Cosmic evolution, space communication, technological advances, search strategies and systems. Includes bibliography of reports concerning the search for extraterrestrial intelligence.

NASA SP–419
N78-18771 289 pp
Avail GPO 1977

Voyager to Jupiter and Saturn

Voyager mission schedule and profiles for encounters, description of spacecraft and trajectories, scientific investigations and instruments.

NASA SP–420
N77-29046 62 pp
Avail NTIS 1977

Recognition of Compact Astrophysical Objects

H. Ogelman, R. Rothschild

Stellar evolution, pulsars, binary stars, x-ray signatures, gamma ray sources, temporal analysis of x-ray data.

NASA SP–421
N77-34063 200 pp
Avail NTIS 1977

Calculation Methods for Compressible Turbulent Boundary Layers: State-of-the-Art, 1976

D. M. Bushnell, A. M. Cary, Jr., J. E. Harris

Equations and closure methods for compressible turbulent boundary layers, flow phenomena, three-dimensional layers.

NASA SP–422
N78-13371 146 pp
Avail NTIS 1977

Atlas of Mercury

M. E. Davies, S. E. Dornik, D. E. Gault, R. G. Strom

Mariner 10 spacecraft, scientific mission, surface mapping techniques, topographic features of Mercury. Photographs, shaded relief maps, photomosaics.

NASA SP–423
N78-30025 135 pp
Avail GPO 1978

The Voyage of Mariner 10: Mission to Venus and Mercury

J. A. Dunne, E. Burgess

Historical details of Mariner 10 mission, images of Venus and Mercury.

NASA SP–424
N78-27146 233 pp
Avail GPO 1978

The Martian Landscape

Design of the facsimile camera, image sequencing, picture calibration, reconstruction of color, search for motion on Mars. Over 200 color and black and white photographs.

NASA SP–425
N79-12984 160 pp
Avail GPO 1978

Sun, Weather, and Climate

J. R. Herman, R. A. Goldberg

Solar-related correlation factors, long-term climatic trends, physical processes and mechanisms, recapitulation of Sun-weather relationships, guidelines for experiments.

NASA SP–426
N79-20961 365 pp
Avail GPO 1978

High-Altitude Perspective

Capabilities of the NASA Ames Research Center U-2 aircraft for research or experimental programs.

NASA SP–427
N78-31508 33 pp
Avail GPO 1978

Space Resources and Space Settlements

J. Billingham, W. P. Gilbreath, B. Oleary, et al.

Research needs for regenerative life-support systems, habitat design, dynamics and design of electromagnetic mass drivers, asteroids as resources for space manufacturing, processing of nonterrestrial materials.

NASA SP–428
N79-32225 292 pp
Avail GPO 1979

Viking Site Selection and Certification

H. Masursky, N. L. Crabill

Premission phase through the acquisition of data and decisions during mission operations and the immediate postlanding evaluation.

NASA SP–429
N81-25992 39 pp
Avail NTIS 1981

Physiological Responses of Women to Simulated Weightlessness

H. Sandler, D. L. Winter

Subjects were exposed to centrifugation, lower body negative pressure, and exercise stress.

NASA SP–430
N79-13686 92 pp
Avail NTIS 1978

Digital Processing of Remotely Sensed Images

J. G. Moik

The foundations of image processing. Imaging techniques include image resolution, enhancement, registration, analysis and classification, and data compression.

NASA SP–431
N81-20489 338 pp
Avail GPO 1980

The Space Shuttle at Work

H. Allaway

Operation, tasks and duties, design, future development of the Space Shuttle.

NASA SP–432
N80-30367 84 pp
Avail GPO 1979

Shuttle Atmospheric Lidar Research Program: Final Report of Science Working Group

Determination of global flow of water vapor and pollutants in the troposphere, improvement of chemical and transport models of the stratosphere and mesosphere, evaluation of radiative models of the atmosphere, investigation of chemistry and transport of thermospheric atomic species and magnetospheric aspects of Sun/weather relationships.

NASA SP–433
N80-11414 231 pp
Avail NTIS 1979

An Emission-Line Survey of the Milky Way

R. A. R. Parker, T. R. Gull, R. P. Kirschner

The instrumentation used in an examination of the ionization structure of emission nebulae and of the galactic plane in general, and characteristics of the prints obtained.

NASA SP–434
N80-11966 224 pp
Avail GPO 1979

Terminal Configured Vehicle Program Facilities Guide

Program established to conduct research and to develop and evaluate aircraft and flight management system technology concepts to benefit conventional takeoff and landing operations in the terminal area. Analyses, simulation and flight experiments.

NASA SP–435
N80-18028 67 pp
Avail NTIS 1980

Project Orion: A Design Study of a System for Detecting Extrasolar Planets

D. C. Black

Design concept for a ground-based astrometric telescope that could significantly increase the potential accuracy of astrometric observations.

NASA SP–436
N80-27260 214 pp
Avail GPO 1980

Mathematical Modeling of Diverse Phenomena

J. C. Howard

Tensor calculus applied to the formulation of mathematical models of diverse phenomena.

NASA SP–437
N80-13839 402 pp
Avail NTIS 1979

Atlas of Mars

R. M. Batson, P. M. Bridges, J. L. Inge

Small-scale maps and photomosaics covering the entire surface of the planet Mars.

NASA SP–438
N80-16998 154 pp
Avail GPO 1979

Voyage to Jupiter

D. Morrison, J. Samz

The story of the Voyager project, including many color photographs from the Voyager 1 and 2 flybys of Jupiter.

NASA SP–439
N81-10910 211 pp
Avail GPO 1980

Wind Tunnels of NASA

D. D. Baals, W. R. Corliss

The development of the wind tunnel and the problems of calibration, scaling, and instrumentation.

NASA SP–440
N81-32153 162 pp
Avail GPO 1981

Viking Orbiter Views of Mars

C. R. Spitzer

A collection of Viking Orbiter images, including polar regions, moons, atmosphere, craters, and channels. Stereopticon included.

NASA SP–441
N81-11966 189 pp
Avail GPO 1980

Lessons of the NASA Tech House

H. Allaway

Report of a family's one-year residence in Langley Research Center's experimental house of the future that combines advanced electronics, solar energy, water recycling, and fire-retardant materials.

NASA SP–442
N80-27219 41 pp
Avail GPO 1980

Materials Processing In Space: Early Experiments

R. J. Naumann, H. W. Herring

Potential applications of space processing, the behavior of fluid in low gravity, and the evolution of apparatus for materials processing in space.

NASA SP–443
N81-16075 123 pp
Avail GPO 1980

Images of Mars: The Viking Extended Mission

M. H. Carr, N. Evans

Thirty black and white photographs of Mars, some taken as recently as 1979, showing volcanoes, lava plains, channels, canyons, plateaus, impact craters, surface features of Phobos and Deimos.

NASA SP-444
N80-26239 35 pp
Avail GPO 1980

The High-Speed Frontier: Case Histories of Four NACA Programs, 1920-1950

J. V. Becker

The development of supersonic airfoils is described, with emphasis on propeller blade design and configurations.

NASA SP-445
N81-15969 196 pp
Avail GPO 1980

Pioneer: First to Jupiter, Saturn, and Beyond

R. O. Fimmel, J. Van Allen, E. Burgess

The planning process, technical aspects of the spacecraft design and operation, the scientific payloads, and experiments conducted during interplanetary flight.

NASA SP-446
N81-15925 296 pp
Avail GPO 1980

Space Physiology and Medicine

A. E. Nicogossian, J. F. Parker, Jr.

Overviews of manned space flight, the space environment, health maintenance of space crew members, and medical problems of space flight.

NASA SP-447
N83-25349 331 pp
Avail NTIS 1982

Risk to the Public from Carbon Fibers Released in Civil Aircraft Accidents

NASA SP-448
N81-18096 71 pp
Avail NTIS 1980

A Catalog of NASA Special Publications

Superceded by NASA SP-470.

NASA SP-449
N81-21995 110 pp
Avail NTIS 1981

The Sun As a Star

S. D. Jordan

Solar physics review. Topics include the existence of the chromosphere, the corona, and the solar wind.

NASA SP-450
N81-27008 559 pp
Avail NTIS 1981

Voyages to Saturn

D. Morrison

The Voyager spacecraft and their instruments are described and supplemented by numerous black and white and color photographs.

NASA SP-451
N82-26152 232 pp
Avail GPO 1982

Gamma Ray Astrophysics: New Insight Into the Universe

C. E. Fichtel, J. I. Trombka

Gamma ray observations of the solar system, the galaxy, and extragalactic radiation are reported.

NASA SP-453
N82-21118 405 pp
Avail GPO 1981

Orbiting Quarantine Facility: The Antaeus Report

D. L. Devincenzi, J. R. Bagby

Orbiting Quarantine Facility (OQF) system overview, quarantine and protocol, the laboratory, and support systems.

NASA SP-454
N82-20225 144 pp
Avail NTIS 1981

Capturing Energy From the Wind

J. L. Schefter

Windpower history, wind turbine technology, and electric power generation. Illustrated.

NASA SP-455
N82-28783 88 pp
Avail GPO 1982

B Stars With and Without Emission Lines

A. Underhill, V. Doazan

The spectra for supergiant B stars are presented, along with the development of models compatible with all known facts about a star and with the laws of physics.

NASA SP-456
N82-25027 533 pp
Avail NTIS 1982

Nimbus 6 Random Access Measurement System Applications Experiments

C. E. Cote, R. Taylor, E. Gilbert

Data collection techniques are demonstrated in investigation of the atmosphere, oceanographic parameters, navigation and position location, and data buoy development.

NASA SP-457
N83-14835 103 pp
Avail NTIS 1982

Mount St. Helens Eruptions of 1980

R. E. Newell, A. Deepak

The atmospheric and potential climatic aspects of a volcanic eruption are presented. Measurements and techniques used in collecting the data are summarized.

NASA SP-458
N82-32915 141 pp
Avail GPO 1982

Small Transport Aircraft Technology

L. J. Williams

Information on commuter airline trends and aircraft developments is provided.

NASA SP-460
N83-20931 118 pp
Avail NTIS 1983

Pioneer Venus

Richard O. Fimmel, Lawrence Colin, Eric Burgess

A comprehensive view of a planet provided by a 1978 encounter. Includes the history of the program and details of the spacecraft and scientific experiments.

NASA SP-461 268 pp
Avail GPO 1982

Fuel Economy in Aviation

Jeffrey L. Ethell

A summary of NASA's aircraft energy efficiency program.

NASA SP-462 119 pp
Avail GPO 1983

The A-Type Stars: Problems and Perspectives

Sidney C. Wolff, Stuart Jordan

The third of a series providing a critical examination of current hypotheses for interpreting non-thermal phenomena in stellar astronomical data.

NASA SP-463 258 pp
Avail NTIS 1983

A NASA High-Power Space-Based Laser Research and Applications Program

R. J. DeYoung, G. D. Walberg, E. J. Conway, et al.

An assessment of the program with recommendations for proposed areas of research.

NASA SP-464 46 pp
Avail NTIS 1983

The Star Splitters: The High-Energy Astronomy Observatories

Wallace H. Tucker

Summarizes the findings of the three HEAO satellites launched to study the high-energy universe.

NASA SP-466
Avail GPO 1983

Thermodynamic Properties to 6000 K for 210 Substances Involving the First 18 Elements

J. G. Ehlers, S. Gordon, S. Heimel, et al.

NASA SP-3001
N63-23715 332 pp
Avail NTIS 1963

Thermodynamic Properties and Mollier Chart for Hydrogen From 300 K to 20 000 K

R. F. Kubin, L. L. Presley

NASA SP-3002
N64-18507 69 pp
Avail NTIS 1964

Handbook of Space-Radiation Effects on Solar-Cell Power Systems

W. C. Cooley, R. J. Janda

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J. L. Sims

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N. L. Krascella

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Bioastronautics Data Book

J. F. Parker, Jr., V. R. West

Bioastronautics research, including stress effects, sensory perception, and human performance.

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Tables for Supersonic Flow Around Right Circular Cones at Small Angle of Attack

J. L. Sims

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M. J. Berger, S. M. Seltzer

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W. P. Peterson

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C. W. Martz

Fresnel integral evaluated by Taylor series expansions.

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R. A. Svehla

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M. J. Berger, S. M. Seltzer

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W. H. Barkas, M. J. Berger

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H. E. Bailey

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N65-20478 69 pp
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Charts for Equilibrium Flow Properties of Carbon Dioxide in Hypervelocity Nozzles

L. H. Jorgensen, R. J. Redmond

NASA SP-3015
N65-20479 74 pp
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Venus and Mars Nominal Natural Environment for Advanced Manned Planetary Mission Programs

D. E. Evans, G. L. Kraus, D. E. Pitts

NASA SP-3016
N67-25042 59 pp
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Charts for Approximate Thermodynamic Properties of Nitrogen-Oxygen Mixtures

R. D. Brown, B. Fowler

Charts for equilibrium thermodynamic properties of nitrogen-oxygen mixtures under extreme pressure and temperature ranges.

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Charts for Equilibrium and Frozen Flows Across Plane Shock Waves in Carbon Dioxide

V. L. Peterson, C. D. Simcox

Charts for equilibrium and frozen flow across plane shock waves in carbon dioxide used in estimating aerodynamic performance characteristics of bodies in flight.

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G. G. Mateer, V. L. Peterson

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Charts of Isentropic Exponent as a Function of Enthalpy for Various Gases in Equilibrium

L. H. Jorgensen

Charts of isentropic exponent as function of enthalpy and speed for air, nitrogen, carbon dioxide, and mixtures of nitrogen and carbon dioxide in equilibrium.

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Equilibrium Thermodynamic Properties of Three Engineering Models of the Martian Atmosphere

H. E. Bailey

Equilibrium thermodynamic properties (entropy, enthalpy, pressure, and sound speed) of three engineering models of Martian atmosphere.

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J. C. Laurence, J. C. Stoll, P. L. Yobner

Technology of high field electromagnets, axial and radial components of magnetic field produced by solid conical conductor with constant azimuthal current density.

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Calculations of Thermal Field Emission for a Terminated Image Potential

J. F. Morris

NASA SP-3023
N66-16421 612 pp
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Models of the Trapped Radiation Environment. Volume I: Inner Zone Protons and Electrons

J. I. Vette

Models of inner radiation belt to determine values of fluxes and energy spectra of protons and electrons trapped in geomagnetic field.

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N66-16054 59 pp
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Models of the Trapped Radiation Environment. Volume II: Inner and Outer Zone Electrons

A. B. Lucero, J. I. Vette, J. A. Wright

Trapped electron environment in inner and outer radiation belts: tables and graphs.

NASA SP-3024
N66-35685 100 pp
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Models of the Trapped Electron Radiation Environment. Volume III: Electrons at Synchronous Altitudes

A. B. Lucero, J. I. Vette, J. A. Wright

NASA SP-3024
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Models of the Trapped Radiation Environment. Volume IV: Low Energy Protons

J. H. King

NASA SP-3024
N67-36447 66 pp
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Models of the Trapped Radiation Environment. Volume V: Inner Belt Protons

J. P. Lavine, J. I. Vette

Model environment of inner belt proton fluxes.

NASA SP-3024
N69-28911 61 pp
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Models of the Trapped Radiation Environment. Volume VI: High Energy Protons

J. P. Lavine, J. I. Vette

Model environment of high energy protons trapped in radiation belts.

NASA SP-3024
N71-12117 49 pp
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Models of the Trapped Radiation Environment. Volume VII: Long Term Time Variations

Time variations of energetic electron and solar proton distributions in inner radiation belt.

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Space Materials Handbook: Supplement 1 to the Second Edition, Space Materials Experience

J. B. Rittenhouse, J. B. Singletary

Spacecraft structures and systems materials handbook.

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Electron Densities and Scale Heights in the Topside Ionosphere: Alouette I Observations in Midlatitudes

L. Colin, M. J. Rycroft, J. O. Thomas

NASA SP-3026
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Electron Densities and Scale Heights in the Topside Ionosphere: Alouette I Observations Over the American Continents. Volume I: November, December 1962, and January 1963

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NASA SP-3027
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Space Measurement Survey: Instruments and Spacecraft, October 1957-March 1965

H. L. Richter, Jr., H. L. Richter

List of satellites and space probes with descriptions of scientific instrumentation.

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H. A. Hyatt, L. R. Koenig, C. M. Michaux, et al.

Handbook of physical properties, theories, and scientific observations for planet Venus.

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Handbook of the Physical Properties of the Planet Mars

C. M. Michaux

NASA SP-3030
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Handbook of the Physical Properties of the Planet Jupiter

C. M. Michaux

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Electron Densities and Scale Heights in the Topside Ionosphere: Alouette I Observations Over the American Continents. Volume II: March and May 1963

K. L. Chan, L. Colin, J. O. Thomas

NASA SP-3032
N66-38867 610 pp
Avail NTIS 1966

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Electron Densities and Scale Heights in the Topside Ionosphere: Alouette I Observations Over the American Continents. Volume III: June, July, September, and October 1963

K. L. Chan, L. Colin, J. O. Thomas

NASA SP-3033
N67-14933 585 pp
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Electron Densities and Scale Heights in the Topside Ionosphere: Alouette I Observations Over the American Continents. Volume IV: Summary Graphs

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B. H. Croom, E. W. Leyhe

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Additional Stopping Power and Range Tables for Protons, Mesons, and Electrons

M. J. Berger, S. M. Seltzer

Stopping power and range tables for protons, mesons, and electrons in lithium fluoride, silicon, germanium, liquid hydrogen, propane, and freon.

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J. T. Harper, H. W. Schmidt

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N67-26000 285 pp
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Electron Densities and Scale Heights in the Topside Ionsophere: Alouette I Observations Recorded in Hawaii: Winter 1962-1963, Summer 1963

K. L. Chan, L. Colin

Tabulations and graphs of electron density and plasma scale height data computed from Alouette I topside sounder ionograms.

NASA SP-3038
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H. H. Heyson

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Thermodynamic Equilibrium in Prebiological Atmospheres of C, H, O, N, P, S, and Cl

M. O. Dayhoff, R. V. Eck, E. R. Lippincott, et al.

Thermodynamic equilibrium in prebiological atmospheres, and inorganic origin of organic compounds.

NASA SP-3040
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Tables of Fe I Line Intensities. Volume 1: Temperature From 1000 to 6500 K. Volume 2: Temperatures Between 6500 and 20 000 K

W. J. Borucki

Atomic line intensity tables for ionized iron atom at high temperatures.

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N68-24161 219 pp
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Properties of Magnetic Materials for Use in High-Temperature Space Power Systems

J. J. Clark, P. E. Kueser, D. H. Lane, et al.

Property data of magnetic materials for use in high temperature liquid alkali-metal space power systems.

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R. L. Schmadebeck, J. I. Trombka

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Compressed Gas Handbook

R. A. Cota, J. S. Kunkle, S. D. Wilson

High pressure compressible flow systems in space vehicle ground support equipment.

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Real-Gas Effects in Critical Flow Through Nozzles and Thermodynamic Properties of Nitrogen and Helium at Pressures to 300 × 10^5 Newtons Per Square Meter

R. C. Johnson

FORTRAN 4 subroutines for calculating critical flow factor to determine mass flow rate of gaseous helium and nitrogen through critical flow nozzles.

NASA SP-3046
N69-16098 204 pp
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Two-Micron Sky Survey: A Preliminary Catalog

R. B. Leighton, G. Neugebauer

Two-micron sky survey catalog of celestial objects.

NASA SP-3047
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J. M. Allen, D. H. Tudor

Graphical interpolation charts of local skin friction from compressible velocity profiles.

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S. Gussow, G. Weathers

Computerized telemetry filter design.

NASA SP-3049
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Tabulations of Configuration Factors Between Any Two Spheres and Their Parts

N. T. Grier

Tabulated values of configuration factors between two spheres and parts of two spheres.

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J. B. Rittenhouse, J. B. Singletary

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J. R. Stallcop

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S. W. Souders

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E. G. Stassinopoulos

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J. Ramasastry, E. J. Walsh

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Average Energies of Ground and Singly and Doubly Excited Configurations in Highly Ionized Atoms (Electron Numbers N = 3 to N = 20)

S. O. Kastner, Y. Shadmi

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Lunar Ephemeris and Selenographic Coordinates of the Earth and Sun for 1971 and 1972

A. D. Hartung

Lunar ephemeris and selenographic coordinates of Earth and Sun for 1971 and 1972, related geometric information, tables and graphs.

NASA SP-3057
N72-23896 437 pp
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Lunar Ephemeris and Selenographic Coordinates of the Earth and Sun for 1973 and 1974

A. D. Hartung

NASA SP-3058
N72-23897 442 pp
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Lunar Ephemeris and Selenographic Coordinates of the Earth and Sun for 1975 and 1976

A. D. Hartung

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Lunar Ephemeris and Selenographic Coordinates of the Earth and Sun for 1977 and 1978

A. D. Hartung

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Lunar Ephemeris and Selenographic Coordinates of the Earth and Sun for 1979 and 1980

A. D. Hartung

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N72-30819 442 pp
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Lunar Ephemeris and Selenographic Coordinates of the Earth and Sun for 1981 and 1982

A. D. Hartung

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Lunar Ephemeris and Selenographic Coordinates of the Earth and Sun for 1983 and 1984

A. D. Hartung

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N72-31864 437 pp
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Compilation of Ultraviolet Photoabsorption Cross Sections for Atoms Between 5 and 3500 A

R. D. Hudson, L. J. Kieffer

Photoabsorption cross section data as function of wavelength for 24 atoms.

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Hydrogen Line Blanketed Model Stellar Atmospheres

D. A. Klinglesmith

NASA SP-3065
N71-20410 264 pp
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Partition Functions and Equations of State in Plasmas

D. Fischel, W. M. Sparks

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N71-28173 617 pp
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Radio Frequency Interference Handbook

R. E. Taylor

STADAN radio frequency interference problems involving electromagnetic compatibility and lightning.

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Atomic Emission Line Wavelength Calculations below 2000 Angstroms for Lithium II Through Cobalt XXVI

M. D. Williams

NASA SP-3068
N72-12684 118 pp
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Thermodynamic Properties and Theoretical Rocket Performance of Hydrogen to 100 000 K and 1.01325 × 10^8 N/m^2

R. W. Patch

Thermodynamic properties and theoretical rocket performance of hydrogen to 100 000 K and 1.01325 × 10^8 N/m^2 for chemical equilibrium in Debye-Huckel and ideal gas approximations.

NASA SP-3069
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Summary of Transformation Equations and Equations of Motion Used in Free Flight and Wind Tunnel Data Reduction and Analysis

T. G. Gainer, S. Hoffman

Basic formulations for developing coordinate transformations and equations of motion used with free flight and wind tunnel data reduction.

NASA SP-3070
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ASRDI Oxygen Technology Survey. Volume I: Thermophysical Properties

H. M. Roder, L. A. Weber

Handbook of thermophysical properties of liquid and gaseous oxygen.

NASA SP-3071
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ASRDI Oxygen Technology Survey. Volume II: Cleaning Requirements, Procedures, and Verification Techniques

H. Bankaitis, C. F. Schueller

Cleaning processes and postcleaning inspection procedures for meeting oxygen system cleaning requirements.

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ASRDI Oxygen Technology Survey. Volume IV: Low Temperature Measurement

L. L. Sparks

NASA SP-3073
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Tables of Critical-Flow Functions and Thermodynamic Properties for Methane and Computational Procedures for Both Methane and Natural Gas

R. C. Johnson

Calculation of mass flow rate of methane and natural gas through nozzles.

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N. H. Michaud

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ASRDI Oxygen Technology Survey. Volume III: Heat Transfer and Fluid Dynamics-Abstracts of Selected Technical Reports and Publications

A. F. Schmidt

Abstracts of selected reports on heat transfer and fluid dynamics with applicability to oxygen systems.

NASA SP-3076
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J. J. Pelouch, Jr.

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Tables for Supersonic Flow of Helium Around Right Circular Cones at Zero Angle of Attack

J. L. Sims

Analysis of characteristics of supersonic flow of helium around right circular cones at zero angle of attack and Mach numbers from 1.5 to 30.0.

NASA SP-3078
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Nondestructive Evaluation Technique Guide

A. Vary

Seventy nondestructive evaluation techniques, a description of each technique, physical principles involved, example applications, limitations, schematic illustrations.

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Handbook of Infrared Radiation From Combustion Gases

C. B. Ludwig, W. Malkmus, J. E. Reardon, et al.

Handbook on radiant emission and absorption of combustion gases for application to design of rocket combustion chambers and exhausts, turbojet engines, and industrial furnaces.

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Auroral Bremsstrahlung at Balloon Altitudes

S. M. Seltzer, M. J. Berger, T. Rosenberg

Auroral bremsstrahlung flux spectra at various atmospheric depths.

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Revised Tables of Airspeed, Altitude, and Mach Number Presented in the International System of Units

M. S. Benner, R. H. Sawyer

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ASRDI Oxygen Technology Survey. Volume V: Density and Liquid Level Measurement Instrumentation for the Cryogenic Fluids Oxygen, Hydrogen, and Nitrogen

H. M. Roder

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ASRDI Oxygen Technology Survey. Volume VI: Flow Measurement Instrumentation

D. B. Mann

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Tables and Charts of Equilibrium Normal Shock and Shock-Tube Solutions for Helium-Hydrogen Mixtures With Velocities to 70 km/sec

C. G. Miller III, S. E. Wilder

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C. G. Miller III, S. E. Wilder

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Thermodynamic and Related Properties of Parahydrogen From the Triple Point to 300 K at Pressures to 1000 Bar

A. L. Weber

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Hydrogen Technology Survey: Thermophysical Properties

R. D. McCarty

Thermodynamic functions, transport properties, and physical properties of liquid and gaseous hydrogen.

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ASRDI Oxygen Technological Survey. Volume IX: Oxygen Systems Engineering Review

H. W. Schmidt, D. E. Forney

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Synoptic Analyses, 5-, 2-, and 0.4-Millibar Surfaces for January 1972 Through June 1973

Data from meteorological rockets and satellite radiance measurements used to analyze high-altitude synoptic charts.

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J. M. Arvidson, J. A. Brennan

NASA SP-3092
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C. L. Staugaitis

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N75-24848 77 pp
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Diurnal Experiment Data Report, March 19-20, 1974

F. J. Schmidlin, Y. Yamasaki, A. Motta, et al.

Temperature and wind data from 70 small meteorological sounding rockets launched from eight selected launch sites in the Western Hemisphere.

NASA SP-3095
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Molecular Physics of Equilibrium Gases: A Handbook for Engineers

C. F. Hansen

NASA SP-3096
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Tables and Charts of Equilibrium Thermodynamic Properties of Carbon Dioxide for Temperatures to 25 000 K

C. G. Miller III, S. E. Wilder

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Tables and Charts of Equilibrium Normal Shock and Shock Tube Properties for Pure Argon With Velocities to 18 km/sec

C. G. Miller III, S. E. Wilder

NASA SP-3098
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Tables and Charts of Equilibrium Thermodynamic Properties of Ammonia for Temperatures From 500 to 50 000 K

A. L. Simmonds, C. G. Miller III, J. E. Nealy

NASA SP-3099
N76-30097 259 pp
Avail NTIS 1976

Tables and Charts of Equilibrium Normal-Shock and Shock-Tube Properties for Pure Carbon Dioxide With Velocities From 1 to 16 km/sec

C. G. Miller III, S. E. Wilder

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Cryogenic Adhesives and Sealants—Abstracted Publications

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N77-15583 144 pp
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Project Mercury: A Chronology

J. M. Grimwood

Events leading to the project, test objectives, flight data summary, launch site summary.

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N63-21848 250 pp
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J. M. Grimwood, B. C. Hacker, P. J. Vorzimer

Chronological study of design and development of Gemini project.

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N69-36501 324 pp
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M. M. Link

Medical aspects of Project Mercury including astronaut selection and training, results of laboratory tests and physiological data, and biomedical planning for space flights.

NASA SP–4003
N65-32394 207 pp
Avail NTIS 1965

Astronautics and Aeronautics, 1963: Chronology on Science, Technology, and Policy

Chronological compilation of events relating to space exploration and exploitation.

NASA SP–4004
N65-11866 615 pp
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Astronautics and Aeronautics, 1964: Chronology on Science, Technology, and Policy

E. M. Emme

Space probes and manned space flights.

NASA SP–4005
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Astronautics and Aeronautics, 1965: Chronology on Science, Technology and Policy

NASA SP–4006
N67-11323 686 pp
Avail NTIS 1966

Astronautics and Aeronautics, 1966: Chronology on Science, Technology, and Policy

NASA launchings, space probes, manned space flights, and other space-related and aeronautics events and discoveries in 1966.

NASA SP–4007
N67-38808 486 pp
Avail GPO 1967

Astronautics and Aeronautics, 1967: Chronology on Science, Technology, and Policy

NASA SP–4008
N69-25647 495 pp
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The Apollo Spacecraft: A Chronology

Volume I. Through November 7, 1962.

I. D. Ertel, M. L. Morse

NASA SP–4009
N69-32021 275 pp
Avail GPO 1969

Volume II. November 8, 1962–September 30, 1964.

M. L. Morse, J. K. Bays

NASA SP–4009
N74-12507 290 pp
Avail NTIS 1973

Volume III. October 1, 1964–January 30, 1964.

C. G. Brooks, I. D. Ertel

NASA SP–4009
N76-21268 296 pp
Avail GPO 1976

Volume IV. January 21, 1966–July 13, 1974.

I. D. Ertel, R. W. Newkirk, C. G. Brooks

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N80-20437 476 pp
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R. W. Newkirk, I. D. Ertel, C. G. Brooks

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N71-32246 539 pp
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Astronautics and Aeronautics, 1970: Chronology on Science, Technology, and Policy

NASA SP–4015
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Avail GPO 1972

Astronautics and Aeronautics, 1972: Chronology on Science, Technology, and Policy

NASA SP–4017
N75-10129 590 pp
Avail GPO 1974

Astronautics and Aeronautics, 1973: Chronology on Science, Technology and Policy

NASA SP–4018
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Avail GPO 1975

Astronautics and Aeronautics, 1974: A Chronology

N. L. Brun

NASA SP–4019
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Astronautics and Aeronautics, 1975: A Chronology

N. L. Brun, E. H. Ritchie

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Avail GPO

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R. L. Rosholt

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A. S. Levine

The administration and organization are described and analyzed.

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C. C. Alexander, J. M. Grimwood, L. S. Swenson, Jr.

Technological and managerial history of Mercury project, including bibliography.

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M. C. Green, M. Lomask

Origin, course of development, and results of Vanguard Project.

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B. C. Hacker

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R. E. Bilstein

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H. E. Newell

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A. Rosenthal

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E. P. Hartman

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History of NASA Sounding Rockets

W. R. Corliss

Historical summary of the development and use of sounding rockets.

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Origins of NASA Names

H. T. Wells, S. H. Whiteley, C. E. Karegeannes

Selection of names for launch vehicles, spacecraft, manned spaceflight programs, sounding rockets, and field installations through 1974.

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J. L. Sloop

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E. H. Kloman

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71

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H. M. Nance

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H. T. Francis

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W. H. Bickley, C. R. Smith

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V. L. Rogallo

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Aluminum welding techniques for space vehicle applications.

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Resistance spot-welding of interconnecting electronic components.

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A. G. Imgram, W. S. Lyman, H. L. Martin

Cryogenic temperature investigations of aluminum, nickel, steel, titanium, and magnesium alloys.

NASA SP-5012
N65-11046 60 pp
Avail NTIS 1964

Effects of Low Temperatures on the Mechanical Properties of Structural Metals

J. E. Campbell, A. G. Imgram, H. L. Martin, et al.

Low temperature effects on tensile properties of aluminum, magnesium, nickel, steel, and titanium alloys.

NASA SP-5012(01)
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Precision tools, machine tools, and measuring apparatus.

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J. D. Plunkett

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I. I. Islamoff

Metal forming techniques for sheet and plate materials used by aircraft and aerospace industry.

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Transforming and Using Space-Research Knowledge—Ten Diversified Views

Space technology applications to industrial process development—welding, turbopumps, human waste as fuel, plastics, neurophysiology and computers. Symposium, June 1964.

NASA SP-5018
N65-18526 111 pp
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NASA Contributions to Advanced Valve Technology

L. C. Burmeister, J. B. Loser, E. C. Sneegas

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J. D. King

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Bibliography on Welding Methods

Welding methods bibliography with abstracts, and subject and author indices.

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Suggested Method for Plating Copper on Aluminum

Method for plating copper on aluminum using phosphate anodizing process.

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Brazing and Brazing Alloys

A bibliography.

NASA SP-5026
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Thermal Insulation Systems: A Survey

I. A. Black, P. E. Glaser, R. S. Lindstrom, et al.

Thermal insulation systems for cryogenic storage and high temperature protection.

NASA SP-5027
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Technical and Economic Status of Magnesium-Lithium Alloys

P. D. Frost

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Elastic Orifices for Gas Bearings

Elastic orifice in externally pressurized gas bearings.

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Symposium on Technology Status and Trends

Aerospace technological developments, trends, and potential commercial applications. Symposium, April 1965.

NASA SP-5030
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Microelectronics in Space Research

R. M. Burger

Technology survey of microelectronics in space research.

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D. R. Cloyd, W. J. Murphy

The hazards that have restricted the use of rocket fuels and oxidizers for space work and the procedures by which they have been handled and stored safely. A technology survey.

NASA SP-5032
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Plasma Jet Technology

J. B. Bond, P. R. Dennis, D. W. Gates, et al.

Survey on industrial applications of plasma arc devices.

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Magnetic coil design and development for electromagnetic hammer to remove distortion from welded components.

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V. D. Barth

Tungsten powder metallurgy technology related to space vehicles and less traditional applications.

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Bibliography on Electromechanical Transducers

NASA SP-5036
N66-17359 44 pp
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Bibliography on Solid Lubricants

NASA SP-5037
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Magnetic Tape Recording

S. W. Athey

Types of magnetic recording, elements of the tape recorder, recording methods, recorder electronics.

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W. J. Jones, W. C. Simpson

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R. A. Fowler

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C. E. Moeller

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A. M. Hall, C. J. Slunder

Metallurgy, behavior, and application of 18 percent nickel maraging steels.

NASA SP-5051
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Joining Ceramics and Graphite to Other Materials

R. M. Evans, R. E. Monroe, H. E. Pattee

NASA SP-5052
N69-14241 89 pp
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Conference on Selected Technology for the Petroleum Industry

Selected aerospace technology for petroleum industry representatives—combustion, heat transfer, surface physics and chemistry, lubricants and bearings, hydrodynamics. Conference, December 1965.

NASA SP-5053
N66-33666 186 pp
Avail NTIS 1966

NASA Contributions to Bioinstrumentation Systems

B. Ettelson, M. Klagsbrun, D. Ukkestad, et al.

NASA SP-5054
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"Nonglassy" Inorganic Fibers and Composites

C. G. Harman

Theory and developments in fiber-reinforced composites, whiskers, fibers, and metal wires.

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Application of Biogeochemistry to Mineral Prospecting

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N69-10492 135 pp
Avail NTIS 1968

Selected Technology for the Electric Power Industry

Selected conference papers on NASA technology utilization for electric power industry. Conference, September 1968.

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NASA Contributions to Fluid-Film Lubrication

Survey of incompressible and compressible fluid film hydrostatic and hydrodynamic lubrication.

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Solid Lubricants

M. E. Campbell

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Some New Metal and Metal-Ceramic Composites

S. Korman

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Commercial Potentials of Semipermeable Membranes

E. J. Henley, H. K. Staffin, S. B. Tuwiner

Semipermeable membrane technology for commercial and industrial applications.

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High-Velocity Metalworking

H. M. Gadberry, J. B. Loser, M. C. Noland, et al.

High velocity electromagnetic, electrohydraulic, explosive, and pneumatic-mechanical methods of metal working.

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Avail GPO 1967

76

Vacuum Switchgear

W. S. Emmerich

Survey of vacuum switchgear technology.

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NASA Contributions to Metal Joining

J. Heuschkel, W. J. Reichenecker

Survey of NASA supported metals joining research having industrial applications.

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Selected Machining and Metal Fabricating Technology

Machine tools and metal fabricating technology developments.

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S. N. Glarum, R. B. Perkins

Adhesives, sealants, and gaskets developed to operate in space environment.

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Teleoperator Controls

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Engineering problems survey on teleoperator control systems.

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Induction Heating Advances: Applications to 5800°F

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Technology utilization of induction heating systems up to 5800°F.

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Air Pollution Monitoring Instrumentation

A. Lieberman, P. Schipma

Air pollution monitoring instrumentation developed for aerospace uses surveyed for industrial applications.

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N69-24751 78 pp
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Pavement Grooving and Traction Studies

Runway and highway pavement grooving and traction studies. Conference, November 1968.

NASA SP-5073
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Clean Room Technology

J. W. Useller

Clean room technology for control of contaminants for component reliability.

NASA SP-5074
N69-33775 66 pp
Avail GPO 1969

Aerospace Related Technology

Technology utilization by industries of aerospace sciences and systems. Conference, May 1969.

NASA SP-5075
N69-31946 177 pp
Avail NTIS 1969

Contamination Control Handbook

NASA SP-5076
N70-13566 314 pp
Avail NTIS 1969

77

Potting Electronic Modules

R. E. Keith

Developments in technology of encapsulating, potting, or embedding electronic modules.

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Advanced application of computers for biomedical research in manned space flight.

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Constructing Inexpensive Automatic Picture-Transmission Ground Stations

C. H. Vermillion

Equipment specifications and engineering drawings for automatic picture transmission ground stations.

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Weather Satellite Picture Receiving Stations

C. H. Vermillion

Procurement and construction of automatic picture transmission ground station equipment for ESSA and Nimbus transmission.

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Avail NTIS 1969

Advancements in Teleoperator Systems

Proceedings from colloquium on transfer of teleoperator device technology. February 1969.

NASA SP-5081
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Nondestructive Testing—Trends and Techniques

Nondestructive testing and inspection methods using infrared microscopy, x-ray television, and ultrasonic measurements.

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Analytical Chemistry Instrumentation

L. A. Cavanagh, R. F. Muraca, J. S. Whittick

Instrumentation for chemical analysis of planetary environment and extraterrestrial life.

NASA SP-5083
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Machining and Grinding of Ultrahigh-Strength Steels and Stainless Steel Alloys

F. W. Boulger, J. A. Gurklis, C. T. Olofson

NASA SP-5084
N68-21241 217 pp
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Adhesive Bonding of Stainless Steels Including Precipitation-Hardening Stainless Steels

R. E. Keith, R. C. Martin, M. D. Randall

Organic and inorganic adhesives for bonding of stainless steels and precipitation hardened stainless steels.

NASA SP-5085
N68-20056 125 pp
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Shaping of Precipitation-Hardening Stainless Steels by Casting and Powder-Metallurgy

V. D. Barth, J. G. Kura, H. O. McIntire

NASA SP-5086
N68-19307 51 pp
Avail NTIS 1968

Welding of Precipitation-Hardening Stainless Steels

R. M. Evans, D. C. Martin, J. J. Vagi

NASA SP-5087
N68-21429 194 pp
Avail NTIS 1968

Deformation Processing of Precipitation-Hardening Stainless Steels

F. W. Boulger, A. F. Gerds, D. E. Strobecker

NASA SP-5088
N68-21917 278 pp
Avail NTIS 1968

Thermal and Mechanical Treatment for Precipitation-Hardening Stainless Steels

A. M. Hall, A. F. Hoenie, C. J. Slunder

NASA SP-5089
N68-20433 207 pp
Avail NTIS 1967

A New Aluminum Sand Casting Alloy of High Toughness (M-45)

R. A. Wood

High toughness aluminum sand casting alloy for cryogenic applications.

NASA SP-5091
N70-41456 34 pp
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Surface Treatments for Precipitation-Hardening Stainless Steels

Hard surfacing, electroplating, electrodeless plating, carburizing, nitriding, burnishing, explosive hardening, planishing, and peening of precipitation-hardenable stainless steels.

NASA SP-5090
N68-19343 64 pp
Avail NTIS 1967

Hydrogen Leak and Fire Detection

V. H. Dayan, R. L. Proffit, B. Rosen

NASA SP-5092
N70-40917 88 pp
Avail NTIS 1970

Acoustics Technology

S. W. Athey

Survey on acoustics technology emphasizing noise reduction and human tolerances.

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T. B. Fryer

Biomedical telemetric systems for monitoring physiological parameters of animals.

NASA SP-5094
N71-27983 119 pp
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Vacuum Melting and Casting of Superalloys

C. A. Alexander, J. M. Blocher, Jr., E. L. Foster, et al.

Composition, properties, and applications of superalloys and techniques for vacuum melting and vacuum casting procedures.

NASA SP-5095
N71-25891 179 pp
Avail NTIS 1971

Materials for Improved Fire Safety

Materials for improved fire safety with application to design and development of spacecraft and support equipment. Conference, May 1970.

NASA SP-5096
N72-16409 209 pp
Avail GPO 1971

Uses of Ceramics in Microelectronics

W. R. Bratschun, A. J. Mountvala, A. G. Pincus

Survey of uses of ceramics in microelectronics for technology utilization.

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N72-13495 174 pp
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Powder Metallurgy in Aerospace Research

H. W. Blakeslee

Methodology and results of powder metallurgy for nonaerospace utilization.

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A. J. Derr

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R. L. Eshleman

Transfer of shock and vibration technology for electrical systems to nonaerospace use.

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Avail GPO 1972

Welding and Brazing of Nickel and Nickel-Base Alloys: A Report

J. E. Mortland, R. M. Evans, R. E. Monroe

Bonding of four types of nickel-base materials using welding and brazing techniques.

NASA SP-5101
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Avail GPO 1972

Technology of Forced Flow and Once-Through Boiling

H. F. Poppendieck, C. M. Sabin

NASA SP-5102
N75-22630 311 pp
Avail NTIS 1975

Selected Technology for the Gas Industry

General future of fossil fuels in America, exploration for fossil and nuclear fuels from orbital altitudes, advanced energy systems. Conference, March 1975.

NASA SP-5103
N75-32584 407 pp
Avail NTIS 1975

An RC Active Filter Design Handbook

G. J. Deboo

Simplified procedures for readers with minimum knowledge of circuit design and filter theory.

NASA SP-5104
N78-18312 181 pp
Avail NTIS 1977

Advances in Sterilization and Decontamination

NASA SP-5105
N78-16587 190 pp
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Thermal and Mechanical Treatments for Nickel and Some Nickel-Base Alloys: Effects on Mechanical Properties

A. M. Hall, V. F. Beuhring

Heat treating and working nickel and nickel alloys, and effects of these operations on mechanical properties.

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Selected Developments in Laser Wire Stripping

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Handbook for Industrial Noise Control

The basic principles of sound, measuring techniques, and instrumentation associated with general purpose noise control.

NASA SP-5108
N83-11858 139 pp
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Systematic Control of Nonmetallic Materials for Improved Fire Safety: A Report

Nonmetallic materials fire safety criteria for application in Apollo spacecraft design.

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N72-28566 38 pp
Avail GPO 1972

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C. M. Jackson, H. J. Wagner, R. J. Wasilewski

Metallurgy, characteristic properties, and industrial applications of nickel titanium alloy with shape memory.

NASA SP-5110
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Sputtering and Ion Plating

Conference, March 1972.

NASA SP-5111
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T. M. Weathers

Research and development of fluidics systems and applications to industrial processes.

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Principles and applications of nondestructive tests.

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J. B. Berkowitz, N. H. Emerson

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B. J. Crowe

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D. D. Dudley

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Development of externally rechargeable pacemaker, use of ferrofluids in separation of nonferrous metals, development of breathing system for firefighters.

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Technology Utilization Program Report, 1974

O. Carlson, L. Dosa, W. Leavitt

Adaptation of technological innovations from the NASA space program to industrial and domestic use.

NASA SP-5120
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Avail GPO 1975

Technology Utilization Program Report, 1975

N. P. Ruzic

Space spinoffs for business and personal use.

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M. L. Seccomb

System for management of mass properties during procurement and use of space vehicles.

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Management standards for electrical power control during procurement and use of space vehicles in Apollo project.

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Weight/performance management survey manual for Apollo project.

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D. S. Liberman, A. J. Slechter

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NASA SP-6504
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R. E. Boss, J. P. Craig, S. J. Henkel, Jr.

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R. J. Anstead, E. Goldberg

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R. J. Anstead

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Avail NTIS

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NASA SP-7006
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NASA SP-7007
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Preparing Contractor Reports for NASA: Technical Illustrating

Technical illustrating: graphs, line drawings, perspective drawing, photographs, typography, and layout.

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Lasers and Masers: A Continuing Bibliography

Published annually from 1965 to 1968.

NASA SP-7009
Avail NTIS

Clarity in Technical Reporting

S. Katzoff

Mechanisms for writing abstracts and technical reports.

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Avail GPO 1964

Aerospace Medicine and Biology: A Continuing Bibliography

Published monthly.*

NASA SP-7011
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The International System of Units: Physical Constants and Conversion Factors (Second Revision)

E. A. Mechtly

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NASA SP-7012
N73-26969 23 pp
Avail GPO 1973

NASA Publications Manual, 1974

NASA SP-7013
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Avail GPO 1974

Bibliography Related to Human Factors System Program, July 1962–February 1964

R. J. Potocko

NASA SP-7014
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Extraterrestrial Life: A Bibliography

Part I. Report Literature
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Part II. Published Literature
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Planetary Atmospheres: A Continuing Bibliography

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NASA SP-7026
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Secondary Aerospace Batteries and Battery Materials: A Bibliography

G. Halpert, W. H. Webster, Jr.

Annotated bibliography on secondary aerospace battery materials and related processes from 1923 through 1968.

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Avail NTIS 1969

A Selected Listing of NASA Scientific and Technical Reports for 1966

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NASA Scientific and Technical Reports for 1967: A Selected Listing

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NASA Thesaurus

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Avail NTIS 1967

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J. Epstein, D. Harris

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N68-29959 189 pp
Avail NTIS 1968

NASA Scientific and Technical Reports for 1968: A Selected Listing

NASA SP-7033
N69-29492 453 pp
Avail NTIS 1969

R and D Reporting: Guidance for Technical Monitors of NASA Contracts

Options and information resources open to NASA monitors.

NASA SP-7034
N70-14397 16 pp
Avail NTIS 1969

NASA Scientific and Technical Reports and Publications for 1969: A Selected Listing

Bibliographic citations and abstracts of NASA scientific and technical reports with indexes.

NASA SP-7035
N70-34702 950 pp
Avail GPO 1970

Remote Sensing of Earth Resources: A Literature Survey With Indexes

Annotated bibliography of literature on remote sensing of Earth resources announced between January/February 1962 and 1970.

NASA SP-7036
N70-41047 1220 pp
Avail NTIS 1970

Remote Sensing of Earth Resources (Supplement)

Section 1. Abstracts

NASA SP-7036(01)
N75-25235 654 pp
Avail NTIS 1975

Section 2. Indexes

NASA SP-7036(01)
N75-25236 402 pp
Avail NTIS 1975

Aeronautical Engineering: A Special Bibliography

Published monthly.*

NASA SP-7037
Avail NTIS

Significant NASA Inventions Available for Licensing in Foreign Countries

Published in 1971, 1973, 1974, 1975, 1976, 1977.

NASA SP-7038
Avail GPO

NASA Patent Abstracts Bibliography: A Continuing Bibliography

Published semiannually.*

NASA SP-7039
Avail NTIS

NASA Thesarus Alphabetical Update

Superceded by NASA SP-7051.

NASA SP-7040
N72-15923 619 pp
Avail NTIS 1971

*Available through NTIS subscription service.

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Earth Resources: A Continuing Bibliography

Published quarterly.*

NASA SP-7041
Avail NTIS

Energy: A Special Bibliography With Indexes

NASA SP-7042
N74-29337 534 pp
Avail NTIS 1974

Energy: A Continuing Bibliography With Indexes

Published quarterly.*

NASA SP-7043
Avail NTIS

Secondary Aerospace Batteries and Battery Materials: A Bibliography (1969-1974)

P. McDermott, G. Halpert, S. Ekpanyaskun, et al.

NASA SP-7044
N77-16437 161 pp
Avail NTIS 1976

Data Bases and Data Base Systems Related to NASA's Aerospace Program: A Bibliography With Indexes.

Reports, articles, and other documents introduced into the NASA scientific and technical information system from 1975 through 1980.

NASA SP-7045
N81-31018 511 pp
Avail NTIS 1981

Technology for Large Space Systems: A Continuing Bibliography

Published semiannually.*

NASA SP-7046
Avail NTIS

NASA Publications Guide

Discusses the NASA scientific and technical publications program and NASA publishing policies and standards.

NASA SP-7047 19 pp
Avail NTIS 1982

Data Base and Data Base Systems Related to NASA's Aerospace Program

A listing of 641 reports, articles, and other documents introduced into the NASA scientific and technical information system during the period January 1, 1981 through June 30, 1982.

NASA SP-7048
N83-22010 172 pp
Avail NTIS 1983

*Available through NTIS subscription service.

NASA Thesaurus

Superceded by NASA SP-7051.

Volume 1. Alphabetical Listing

NASA SP-7050
N76-17992 820 pp
Avail NTIS 1976

Volume 2. Access Vocabulary

NASA SP-7050
N76-17993 442 pp
Avail NTIS 1976

NASA Thesaurus.

Volume 1. Hierarchical Listing

NASA SP-7051
N83-10980 840 pp
Avail NTIS 1982

Volume 2. Access Vocabulary

NASA SP-7051
N83-10981 400 pp
Avail NTIS 1982

NASA Guidelines on Report Literature

Literature for the Scientific and Technical Information System includes research reports, conference proceedings, meeting papers, monographs, and doctoral and post-graduate theses which relate to the NASA mission and objectives.

NASA SP-7200
N79-13914 27 pp
Avail NTIS 1978

Management: A Continuing Literature Survey With Indexes

Published annually.*

NASA SP-7500
Avail NTIS

The Systems Approach to Management: An Annotated Bibliography With Indexes

NASA SP-7501
N69-34917 69 pp
Avail NTIS 1969

OGO Program Summary

J. E. Jackson, J. I. Vette

Brief descriptions of the six OGO spacecraft, and the experiments conducted on each.

NASA SP-7601
N76-19643 307 pp
Avail NTIS 1975

OGO Program Summary, Supplement 1

J. E. Jackson

Updated bibliography for all OGO missions and scientific results from OGO 5 and 6 missions.

NASA SP-7601
N79-13601 119 pp
Avail NTIS 1978

Buffeting During Atmospheric Ascent

Aeroelastic spacecraft design to minimize buffeting during atmospheric ascent.

NASA SP-8001
N71-20473 19 pp
Avail NTIS 1970

Flight-Loads Measurements During Launch and Exit

NASA SP-8002
N66-85660 7 pp
Avail NTIS 1964

Flutter, Buzz, and Divergence

NASA SP-8003
N70-71604 10 pp
Avail NTIS 1964

Panel Flutter

Criteria for predicting, preventing, and evaluating panel flutter.

NASA SP-8004
N73-11932 52 pp
Avail NTIS 1972

Solar Electromagnetic Radiation

Values for solar constant and solar spectral irradiance based on air and spaceborne observations for use in design of spacecraft, space vehicles, subsystems, and experiments.

NASA SP-8005
N71-30888 36 pp
Avail NTIS 1971

Local Steady Aerodynamic Loads During Launch and Exit

NASA SP-8006
N70-71605 12 pp
Avail NTIS 1965

Buckling of Thin-Walled Circular Cylinders

Predicting buckling of thin-walled, uniform stiffened and unstiffened circular cylindrical shells under static loading.

NASA SP-8007
N69-23320 58 pp
Avail NTIS 1968

Prelaunch Ground Wind Loads

NASA SP-8008
N70-71628 16 pp
Avail NTIS 1965

Propellant Slosh Loads

NASA SP-8009
N69-14553 188 pp
Avail NTIS 1968

Models of Mars Atmosphere (1974)

NASA SP-8010
N75-19107 52 pp
Avail NTIS 1974

Models of Venus Atmosphere (1972)

Engineering models of Venus atmosphere, based on theory and measured data.

NASA SP-8011
N73-16824 63 pp
Avail NTIS 1972

Natural Vibration Model Analysis

J. S. Archer

Natural vibration model analysis as related to space vehicle design criteria.

NASA SP-8012
N69-22773 35 pp
Avail NTIS 1969

Meteoroid Environment Model—1969 (Near Earth to Lunar Surface)

Meteoroid environment model for cometary origin near Earth to lunar surface.

NASA SP-8013
N69-40326 35 pp
Avail NTIS 1969

Entry Thermal Protection

NASA SP-8014
N69-71545 37 pp
Avail NTIS 1968

Guidance and Navigation for Entry Vehicles

Guidance and navigation for atmospheric entry phase of vehicles.

NASA SP-8015
N69-19518 47 pp
Avail NTIS 1968

Effects of Structural Flexibility on Spacecraft Control Systems

Design and test criteria regarding structural flexibility effects on spacecraft stability and control systems.

NASA SP-8016
N69-37030 70 pp
Avail NTIS 1969

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Magnetic Fields—Earth and Extraterrestrial

Strength and direction data on Earth and extraterrestrial magnetic fields for guidance in vehicle design.

NASA SP-8017
N69-40269 70 pp
Avail NTIS 1969

Spacecraft Magnetic Torques

Magnetic torque resulting from interaction between magnetic properties of spacecraft and ambient magnetic field.

NASA SP-8018
N69-30339 55 pp
Avail NTIS 1969

Buckling of Thin-Walled Truncated Cones

Buckling of thin-walled truncated conical shells under static loads.

NASA SP-8019
N69-24131 32 pp
Avail NTIS 1968

Surface Models of Mars (1975)

NASA SP-8020
N75-32989 84 pp
Avail NTIS 1975

Models of Earth's Atmosphere (90 to 2500 km)

Model for predicting atmospheric parameters at altitudes between 90 and 2500 km.

NASA SP-8021
N73-27325 63 pp
Avail NTIS 1973

Staging Loads

Analysis of loads produced on spacecraft by staging operations and practices to ensure that staging loads are included in spacecraft design.

NASA SP-8022
N71-28634 30 pp
Avail NTIS 1969

Lunar Surface Models

Engineering models of lunar topography including dielectric, optical, terrain, and crater models.

NASA SP-8023
N70-18901 60 pp
Avail NTIS 1969

Spacecraft Gravitational Torques

Gravitational torque effects and analysis for satellite design.

NASA SP-8024
N70-23418 51 pp
Avail NTIS 1969

Solid Rocket Motor Metal Cases

Guidelines and practices for design of solid rocket motor cases.

NASA SP-8025
N70-29740 103 pp
Avail NTIS 1970

Spacecraft Star Trackers

Design criteria for spacecraft star trackers.

NASA SP-8026
N70-38721 69 pp
Avail NTIS 1970

Spacecraft Radiation Torques

Radiation torque sources and effects on spacecraft and spacecraft attitude control system design.

NASA SP-8027
N71-24312 41 pp
Avail NTIS 1969

Entry Vehicle Control

Stabilization and control systems for reentry vehicles.

NASA SP-8028
N70-28538 51 pp
Avail NTIS 1969

Aerodynamic and Rocket-Exhaust Heating During Launch and Ascent

NASA SP-8029
N70-18828 33 pp
Avail NTIS 1969

Transient Loads From Thrust Excitation

Analysis of transient loads produced by ignition of rocket engine during launch and flight operations for solid and liquid propellant rocket engines.

NASA SP-8030
N71-24281 28 pp
Avail NTIS 1969

Slosh Suppression

Slosh suppression devices for aerospace vehicle control stability.

NASA SP-8031
N70-21848 36 pp
Avail NTIS 1969

Buckling of Thin-Walled Doubly Curved Shells

Criteria and recommended practices for design of compressively loaded thin-walled doubly curved shells.

NASA SP-8032
N70-22356 35 pp
Avail NTIS 1969

Spacecraft Earth Horizon Sensors

Engineering design of spacecraft Earth horizon sensors.

NASA SP-8033
N70-35570 49 pp
Avail NTIS 1969

Spacecraft Mass Expulsion Torques

Spacecraft design considerations associated with disturbance torques caused by mass expulsion.

NASA SP-8034
N70-36852 39 pp
Avail NTIS 1969

Wind Loads During Ascent

Determining wind induced structural loads on space vehicles during ascent.

NASA SP-8035
N70-36953 36 pp
Avail NTIS 1970

Effects of Structural Flexibility on Launch Vehicle Control Systems

Structural flexibility effects on launch vehicle control systems and design criteria.

NASA SP-8036
N70-39774 51 pp
Avail NTIS 1970

Assessment and Control of Spacecraft Magnetic Fields

NASA SP-8037
N71-13078 30 pp
Avail NTIS 1970

Meteoroid Environment Model—1970 (Interplanetary and Planetary)

Astronomical meteoroid environment model for space missions.

NASA SP-8038
N71-1 25 69 pp
Avail NTIS 1970

Solid Rocket Motor Performance Analysis and Prediction

Current design practices and technology for predicting propulsion performance of solid propellant rocket engine designs.

NASA SP-8039
N72-18785 113 pp
Avail NTIS 1971

Fracture Control of Metallic Pressure Vessels

Design criteria for fracture optimization of metallic pressure vessels.

NASA SP-8040
N71-14130 65 pp
Avail NTIS 1970

Captive-Fired Testing of Solid Rocket Motors

Captive-fired testing of solid rocket motors for design criteria.

NASA SP-8041
N71-30866 101 pp
Avail NTIS 1971

Meteoroid Damage Assessment

Meteoroid damage determination and spacecraft structure protection and reliability.

NASA SP-8042
N71-25070 50 pp
Avail NTIS 1970

Design-Development Testing

Criteria and procedures for testing spacecraft structural elements and components.

NASA SP-8043
N71-25069 35 pp
Avail NTIS 1970

Qualification Testing

Qualification tests conducted on flight quality components, subsystems, and systems to prove that structural design requirements have been achieved.

NASA SP-8044
N71-29045 30 pp
Avail NTIS 1970

Acceptance Testing

Standardization of structural acceptance tests conducted on flight hardware.

NASA SP-8045
N71-31033 34 pp
Avail NTIS 1970

Landing Impact Attenuation for Non-Surface-Planing Landers

NASA SP-8046
N70-38294 47 pp
Avail NTIS 1970

Spacecraft Sun Sensors

Design criteria and performance specifications for spacecraft Sun sensors.

NASA SP-8047
N71-17756 42 pp
Avail NTIS 1970

Liquid Rocket Engine Turbopump Bearings

Bearing requirements for liquid rocket engine turbopumps.

NASA SP-8048
N71-28011 85 pp
Avail NTIS 1971

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The Earth's Ionosphere

Space vehicle design with considerations for ionospheric electron and ionic density, plasma temperature of ionosphere, and neutral component.

NASA SP-8049
N71-30849 49 pp
Avail NTIS 1971

Structural Vibration Prediction

Internal loads and stresses caused by space vehicle vibration resulting from induced or natural environments.

NASA SP-8050
N71-19281 41 pp
Avail NTIS 1970

Solid Rocket Motor Igniters

Design approach for solid propellant rocket igniters.

NASA SP-8051
N71-30346 111 pp
Avail NTIS 1971

Liquid Rocket Engine Turbopump Inducers

Design criteria for liquid rocket engine turbopump inducers.

NASA SP-8052
N71-34950 255 pp
Avail NTIS 1971

Nuclear and Space Radiation Effects on Materials

Effects of nuclear and space radiation on mechanical, thermal, and optical properties of spacecraft structural materials.

NASA SP-8053
N71-25034 48 pp
Avail NTIS 1970

Space Radiation Protection

Criteria and procedures for determining dosage of penetrating space radiation and design of appropriate protection for space vehicles.

NASA SP-8054
N71-25075 50 pp
Avail NTIS 1970

Prevention of Coupled Structure-Propulsion Instability (Pogo)

NASA SP-8055
N71-26080 51 pp
Avail NTIS 1970

Flight Separation Mechanisms

Criteria and recommended practices for designing and testing flight separation mechanisms.

NASA SP-8056
N71-28986 39 pp
Avail NTIS 1970

Structural Design Criteria Applicable to A Space Shuttle

Updated structural design criteria for manned space shuttle missions.

NASA SP-8057
N73-17881 99 pp
Avail NTIS 1972

Spacecraft Aerodynamic Torques

Assessment of disturbance torques due to interaction of spacecraft with atmosphere in long duration orbits for use in design of spacecraft attitude control systems.

NASA SP-8058
N71-25935 37 pp
Avail NTIS 1971

Spacecraft Attitude Control During Thrusting Maneuvers

NASA SP-8059
N71-26198 51 pp
Avail NTIS 1971

Compartment Venting

Analysis of internal and external gas venting system of spacecraft.

NASA SP-8060
N71-28166 31 pp
Avail NTIS 1970

Interaction With Umbilicals and Launch Stand

Criteria and recommendations to ensure compatible interfaces between space vehicle structure and launch stand ground support equipment.

NASA SP-8061
N71-28829 23 pp
Avail NTIS 1970

Entry Gasdynamic Heating

Determining heat transfer to space vehicles entering planetary atmospheres for proper design and thermal protection.

NASA SP-8062
N71-31179 60 pp
Avail NTIS 1971

Lubrication, Friction, and Wear

Lubrication, friction, and wear processes analyzed for space vehicle design criteria.

NASA SP-8063
N71-31471 180 pp
Avail NTIS 1971

Solid Propellant Selection and Characterization

Analysis of properties of solid rocket propellants and parameters which affect choice of propellant for specific applications.

NASA SP-8064
N72-13737 116 pp
Avail NTIS 1971

Tubular Spacecraft Booms (Extendible, Reel Stored)

Development of reliable and operational design programs for spacecraft guidance and control.

NASA SP-8065
N71-33330 52 pp
Avail NTIS 1971

Deployable Aerodynamic Deceleration Systems

Criteria and recommended practices for design, selection, analysis, and testing of deployable aerodynamic deceleration systems.

NASA SP-8066
N71-31303 88 pp
Avail NTIS 1971

Earth Albedo and Emitted Radiation

Global annual averages of Earth albedo and radiation used to estimate long term effects on space vehicle equipment and surfaces.

NASA SP-8067
N71-33104 48 pp
Avail NTIS 1971

Buckling Strength of Structural Plates

Designs for determining buckling strength of structural plates for spacecraft.

NASA SP-8068
N71-33331 50 pp
Avail NTIS 1971

The Planet Jupiter (1970)

Visible, infrared, and radio observations of Jupiter using Earth based and airborne equipment.

NASA SP-8069
N72-17909 93 pp
Avail NTIS 1971

Spaceborne Digital Computer Systems

Design criteria for guidance and control spaceborne computer selection including physical and functional characteristics and reliability.

NASA SP-8070
N71-33679 82 pp
Avail NTIS 1971

Passive Gravity-Gradient Libration Dampers

NASA SP-8071
N71-34590 60 pp
Avail NTIS 1971

Acoustic Loads Generated by the Propulsion System

Design of flightworthy space vehicle.

NASA SP-8072
N71-33195 54 pp
Avail NTIS 1971

Solid Propellant Grain Structural Integrity Analysis

NASA SP-8073
N74-19389 114 pp
Avail NTIS 1973

Spacecraft Solar Cell Arrays

NASA SP-8074
N71-37630 54 pp
Avail NTIS 1971

Solid Propellant Processing Factors in Rocket Motor Design

NASA SP-8075
N72-31767 82 pp
Avail NTIS 1971

Solid Propellant Grain Design and Internal Ballistics

NASA SP-8076
N73-15804 110 pp
Avail NTIS 1972

Transportation and Handling Loads

Criteria and recommended practices for predicting and verifying transportation and handling loads for space vehicle structure or major segments.

NASA SP-8077
N72-12891 48 pp
Avail NTIS 1971

Spaceborne Electronic Imaging Systems

Criteria and recommended practices for designing spaceborne elements of electronic imaging systems.

NASA SP-8078
N72-14169 71 pp
Avail NTIS 1971

Structural Interaction With Control Systems

Predictions of structural interrelationships with spacecraft active and passive control systems to determine optimum design.

NASA SP-8079
N72-17920 56 pp
Avail NTIS 1971

Liquid Rocket Pressure Regulators, Relief Valves, Check Valves, Burst Discs, and Explosive Valves

NASA SP-8080
N74-10724 123 pp
Avail NTIS 1973

Liquid Propellant Gas Generators

Design of gas turbine for furnishing hot gases for turbine drives and analysis of limitations imposed by thermal stresses.

NASA SP-8081
N73-27705 110 pp
Avail NTIS 1972

Stress-Corrosion Cracking in Metals

Criteria and recommended practices for preventing stress-corrosion cracking in spacecraft structures.

NASA SP-8082
N72-17928 42 pp
Avail NTIS 1971

Discontinuity Stresses in Metallic Pressure Vessels

NASA SP-8083
N72-26933 69 pp
Avail NTIS 1971

Surface Atmospheric Extremes (Launch and Transportation Areas)

Effects of atmospheric surface parameters on space vehicle design and operation.

NASA SP-8084
N74-30047 77 pp
Avail NTIS 1974

The Planet Mercury (1971)

Physical properties of Mercury, including atmosphere and surface, for space vehicle design criteria.

NASA SP-8085
N72-20799 63 pp
Avail NTIS 1972

Space Vehicle Displays Design Criteria

Design and evaluation of spacecraft display guidance and control systems.

NASA SP-8086
N72-26337 45 pp
Avail NTIS 1972

Liquid Rocket Engine Fluid-Cooled Combustion Chambers

Monograph for design and development of combustion chambers for liquid propellant rocket engines.

NASA SP-8087
N73-31697 120 pp
Avail NTIS 1972

Liquid Rocket Metal Tanks and Tank Components

NASA SP-8088
N75-13022 165 pp
Avail NTIS 1974

Liquid Rocket Engine Injectors

NASA SP-8089
N76-30284 130 pp
Avail NTIS 1976

Liquid Rocket Actuators and Operators

NASA SP-8090
N74-17785 158 pp
Avail NTIS 1973

The Planet Saturn (1970)

Saturn planet and environment data for spacecraft designers.

NASA SP-8091
N72-29840 103 pp
Avail NTIS 1972

Assessment and Control of Spacecraft Electromagnetic Interference

Design criteria relating to assessment and control of spacecraft electromagnetic interference.

NASA SP-8092
N72-26119 37 pp
Avail NTIS 1972

Solid Rocket Motor Internal Insulation

NASA SP-8093
N77-30171 124 pp
Avail NTIS 1976

Liquid Rocket Engine Valve Components

NASA SP-8094
N74-27276 150 pp
Avail NTIS 1973

Preliminary Criteria for the Fracture Control of Space Shuttle Structures

NASA SP-8095
N72-25851 16 pp
Avail NTIS 1971

Space Vehicle Gyroscope Sensor Application

Analysis of factors involved in specification, design, and evaluation of gyroscopes for spaceborne sensor applications.

NASA SP-8096
N73-12680 87 pp
Avail NTIS 1972

Liquid Rocket Valve Assemblies

NASA SP-8097
N74-26979 154 pp
Avail NTIS 1973

Effects of Structural Flexibility on Entry Vehicle Control Systems

NASA SP-8098
N72-29870 68 pp
Avail NTIS 1972

Combining Ascent Loads

Criteria and guidelines for combining loads during ascent phase of space flight.

NASA SP-8099
N73-11897 36 pp
Avail NTIS 1972

Liquid Rocket Engine Turbopump Gears

NASA SP-8100
N75-10166 117 pp
Avail NTIS 1974

Liquid Rocket Engine Turbopump Shafts and Couplings

NASA SP-8101
N74-14441 130 pp
Avail NTIS 1972

Space Vehicle Accelerometer Applications

NASA SP-8102
N73-26891 87 pp
Avail NTIS 1972

The Planets Uranus, Neptune, and Pluto (1971)

Influence of Uranus, Neptune, and Pluto environment on design of spacecraft probes.

NASA SP-8103
N73-11870 99 pp
Avail NTIS 1972

Structural Interaction With Transportation and Handling Systems

Space vehicle design to withstand adverse conditions involved in handling and transportation from factory to launch site.

NASA SP-8104
N73-21839 41 pp
Avail NTIS 1973

Spacecraft Thermal Environment

Guidance for assessment and control of spacecraft temperatures.

NASA SP-8105
N73-26890 48 pp
Avail NTIS 1973

Turbopump Systems for Liquid Rocket Engines

NASA SP-8107
N75-20470 168 pp
Avail NTIS 1974

Advanced Composite Structures

NASA SP-8108
N76-12115 107 pp
Avail NTIS 1974

Liquid Rocket Engine Centrifugal Flow Turbopumps

NASA SP-8109
N74-28961 116 pp
Avail NTIS 1973

Liquid Rocket Engine Turbines

NASA SP-8110
N74-34245 158 pp
Avail NTIS 1974

Assessment and Control of Electrostatic Charges

NASA SP-8111
N74-27534 53 pp
Avail NTIS 1974

Pressurization Systems for Liquid Rockets

NASA SP-8112
N76-22300 167 pp
Avail NTIS 1975

Liquid Rocket Engine Combustion Stabilization Devices

NASA SP-8113
N75-28247 127 pp
Avail NTIS 1974

Solid Rocket Thrust Vector Control

NASA SP-8114
N76-17194 200 pp
Avail NTIS 1974

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Solid Rocket Motor Nozzles

NASA SP-8115
N76-20214 140 pp
Avail NTIS 1975

The Earth's Trapped Radiation Belts

NASA SP-8116
N75-22980 100 pp
Avail NTIS 1975

Gravity Fields of the Solar System

NASA SP-8117
N75-24608 79 pp
Avail NTIS 1975

Interplanetary Charged Particle Models (1974)

NASA SP-8118
N75-24607 47 pp
Avail NTIS 1975

Liquid Rocket Disconnects, Couplings, Fittings, Fixed Joints, and Seals

State of the art and design criteria for components used in liquid propellant rocket propulsion systems to contain and control the flow of fluids.

NASA SP-8119
N77-24191 164 pp
Avail NTIS 1976

Liquid Rocket Engine Nozzles

NASA SP-8120
N77-16108 120 pp
Avail NTIS 1976

Liquid Rocket Engine Turbopump Rotating-Shaft Seals

NASA SP-8121
N78-30584 160 pp
Avail NTIS 1978

The Environment of Titan (1975)

NASA SP-8122
N7628138 45 pp
Avail NTIS 1976

Liquid Rocket Lines, Bellows, Flexible Hoses, and Filters

NASA SP-8123
N78-16089 186 pp
Avail NTIS 1977

Liquid Rocket Engine Self-Cooled Combustion Chambers

NASA SP-8124
N78-21211 130 pp
Avail NTIS 1977

Liquid Rocket Engine Axial Flow Turbopumps

NASA SP-8125
N78-31164 127 pp
Avail NTIS 1978

Glossary of Terms and Table of Conversion Factors Used in Design of Chemical Propulsion Systems

NASA SP-8126
N80-17136 89 pp
Avail NTIS 1979

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Specifications

NASA Specifications and Standards

NASA SP-9000
N67-34727 388 pp
Avail NTIS 1967

A Guide to NASA Data Handbooks

Handbooks, manuals, procedures, instructions, and related technical data publications in NASA CENTRAL Information System.

NASA SP-9001
N67-18003 190 pp
Avail NTIS 1967

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Overall Loudness of Steady Sounds According to Theory and Experiment

W. L. Howes

A mathematical theory for calculating the loudness of any steady sound from information on its spectrum constructed from physical principles and psychological and physiological information on mammalian auditory systems.

NASA RP-1001
N79-25753 150 pp
Avail GPO 1979

Cryogenic Foam Insulation: Abstracted Publications

F. R. Williamson

The properties of foam materials and the use of foams as thermal insulation at cryogenic temperatures.

NASA RP-1002
N78-11200 171 pp
Avail NTIS 1977

Bibliography of Supersonic Cruise Aircraft Research (SCAR)

S. Hoffman

Propulsion, stratospheric emissions impact, structures and materials, aerodynamic performance, stability and control.

NASA RP-1003
N78-12895 102 pp
Avail NTIS 1977

Fronts and Frontogenesis as Revealed by High Time Resolution Data

A. E. Frank, D. A. Barber

Upper air sounding used to examine a cold front of average intensity.

NASA RP-1005
N77-30705 135 pp
Avail NTIS 1977

Correction Factors for On-Line Microprobe Analysis of Multielement Alloy Systems

J. Unnam, D. R. Tenney, W. D. Brewer

An on-line correction technique developed for the conversion of electron probe x-ray intensities into concentrations of emitting elements.

NASA RP-1006
N78-15236 216 pp
Avail NTIS 1977

Viking Lander Imaging Investigation: Picture Catalog of Primary Mission Experiment Data Record

R. B. Tucker

Images returned by the two Viking Landers during the primary phase of the Viking Mission.

NASA RP-1007
N78-20042 514 pp
Avail NTIS 1978

Lightning Protection of Aircraft

F. A. Fisher, J. A. Plumer

Potential lightning effects on aircraft and the means available to designers and operators to protect against the effects.

NASA RP-1008
N78-11024 530 pp
Avail NTIS 1977

An Introduction to Orbit Dynamics and Its Application to Satellite-Based Earth Monitoring Systems

D. R. Brooks

The long-term behavior of satellites studied at a level of complexity suitable for the initial planning phases of Earth monitoring missions.

NASA RP-1009
N78-12113 85 pp
Avail NTIS 1977

Chlorofluoromethanes and the Stratosphere

R. D. Hudson

Laboratory measurements, ozone measurements and trends, minor species and aerosol measurements, one-dimensional modeling, multidimensional modeling.

NASA RP-1010
N77-31694 268 pp
Avail NTIS 1977

Thermodynamic and Related Properties of Oxygen From the Triple Point to 300 K at Pressures to 1000 Bar

L. A. Weber

The results of an experimental program presented in the form of PVT data in the temperature range 58 to 300 K at pressures up to 800 bar. Tables of the derived thermodynamic properties on isobars to 1000 bar are given.

NASA RP-1011
N78-16119 164 pp
Avail NTIS 1977

Remote Sensing of Oceanic Parameters During the Skylab/Gamefish Experiment

K. H. Faller

Effort to demonstrate the feasibility of using remotely acquired information to assess and monitor the distribution of oceanic gamefish.

NASA RP-1012
N78-12644 43 pp
Avail NTIS 1977

Triple Point Determinations of Monomethylhydrazine and Nitrogen Tetroxide, 2.2 Percent by Weight Nitric Oxide

I. D. Smith, P. M. Dodge

Tests performed to ascertain the triple points of monomethylhydrazine and nitrogen tetroxide. New experimental values for liquid monomethylhydrazine vapor pressure for temperatures from 275.2 to 207.6 K. Tentative values for the effective freezing point of nitrogen tetroxide in spacelike conditions.

NASA RP-1013
N78-13234 16 pp
Avail NTIS 1977

An Outgassing Data Compilation of Spacecraft Materials

W. A. Campbell, Jr., R. S. Marriott, J. J. Park

Outgassing data derived from tests at 398 K (125°C) or 24 hours in vacuum for numerous materials for spacecraft use.

NASA RP-1014
N78-17151 181 pp
Avail NTIS 1978

Procedures for Gathering Ground Truth Information for a Supervised Approach to a Computer-Implemented Land Cover Classification of Landsat-Acquired Multispectral Scanner Data

A. T. Joyce

NASA RP-1015
N78-15549 48 pp
Avail NTIS 1978

The Use of Landsat Digital Data and Computer-Implemented Techniques for an Agricultural Application

A. T. Joyce, R. H. Griffin II

Agricultural applications procedures for use of Landsat digital data and other digitalized data.

NASA RP-1016
N78-21568 48 pp
Avail NTIS 1978

Stratospheric Warmings: Synoptic, Dynamic and General-Circulation Aspects

R. M. McInturff

Distinction between major and minor warmings, the importance of tropospheric-stratospheric interaction, the significance of the pressure-work term near the tropopause.

NASA RP-1017
N78-18630 173 pp
Avail NTIS 1978

Guide to a Condensed Form of NASTRAN

J. L. Rogers, Jr.

Limited capability form of NASTRAN level 16 to meet the needs of universities and small consulting firms. Can serve as a handbook for instructional courses in the use of NASTRAN or for users who need only the capability provided by the condensed form.

NASA RP-1019
N78-33791 297 pp
Avail NTIS 1978

Precision Positional Data of General Aviation Air Traffic in Terminal Air Space

W. E. Melson, Jr., L. C. Parker, A. M. Northam, et al.

Three-dimensional radar tracks of general aviation air traffic at three uncontrolled airports.

NASA RP-1020
N78-25048 13 pp
Avail NTIS 1978

A Bibliography on the Search for Extraterrestrial Intelligence

E. F. Mallove, M. M. Connors, R. L. Forward, et al.

A uniform compilation of works dealing with the search for extraterrestrial intelligence.

NASA RP-1021
N78-21019 135 pp
Avail NTIS 1978

Man's Impact on the Troposphere: Lectures in Tropospheric Chemistry

J. S. Levine, D. R. Schryer

Lectures covering a broad spectrum of current research in tropospheric chemistry, with particular emphasis on the interaction of measurements, modeling, and understanding of fundamental processes.

NASA RP-1022
N79-10634 571 pp
Avail NTIS 1978

Synoptic Analyses, 5-, 2-, and 0.4-Millibar Surfaces for July 1974 Through June 1976

Meteorological rocketsonde and satellite radiance data employed for analyses of a continuing series of high altitude constant pressure charts.

NASA RP-1023
N78-28748 330 pp
Avail NTIS 1978

Anthropometric Source Book

E. Churchill, L. L. Laubach, J. T. McConville, et al.

Volume 1. Anthropometry for Designers. Application of anthropometry to design of clothing, equipment, and workspaces for manned space flight.

NASA RP-1024
N79-11734 603 pp
Avail NTIS 1978

Volume 2. A Handbook of Anthropometric Data. Data from surveys of 61 populations; 295 measured variables.

NASA RP-1024
N79-13711 428 pp
Avail NTIS 1978

Volume 3. Annotated Bibliography of Anthropometry

NASA RP-1024
N79-13712 130 pp
Avail NTIS 1978

Handbook on Astronaut Crew Motion Disturbances for Control System Design in Skylab

M. C. Kullas

The analyses and results pertinent to the characterization of the disturbances imparted to the Skylab vehicle by the T-013 crew motion experiments.

NASA RP-1025
N79-27237 196 pp
Avail NTIS 1979

An Assessment of the Effect of Supersonic Aircraft Operations on the Stratospheric Ozone Content

I. G. Poppoff, R. C. Whitten, R. P. Turco, et al.

An assessment of the potential effect on stratospheric ozone of an advanced supersonic transport operation using the most recent chemical reaction rate data.

NASA RP-1026
N78-30774 60 pp
Avail NTIS 1978

Viking '75 Spacecraft Design and Test Summary

N. A. Holmberg, R. P. Faust, H. M. Holt

Volume 1. Lander Design

NASA RP-1027
N81-10100 213 pp
Avail NTIS 1980

Volume 2. Orbiter Design

NASA RP-1027
N81-10101 318 pp
Avail NTIS 1980

Volume 3. Engineering Test Summary

NASA RP-1027
N81-11102 107 pp
Avail NTIS 1980

A New Dimension. Wallops Island Flight Test Range: The First Fifteen Years

J. A. Shortal

A record of the first fifteen years (1945-1959) of research and development tests that were performed at Wallops Island.

NASA RP-1028
N79-20166 784 pp
Avail NTIS 1978

The PR2D (Place, Route in 2-Dimensions) Automatic Layout Computer Program Handbook

T. M. Edge

NASA RP-1029
N81-12760 256 pp
Avail NTIS 1978

Molecules of Significance in Planetary Aeronomy

H. Mohan

Spectroscopic information of the molecules of planetary interest. General conditions of planets and their atmospheres including the gaseous molecules.

NASA RP-1030
N79-22980 318 pp
Avail NTIS 1979

3105

Catalog of Far-Ultraviolet Objective-Prism Spectrophotometry: Skylab Experiment S-019, Ultraviolet Stellar Astronomy

K. G. Henize, J. D. Wray, S. B. Parsons, et al.

Approximately 1000 spectra representing 500 stars were measured and reduced to observed fluxes.

NASA RP-1031
N79-27057 545 pp
Avail NTIS 1979

Synoptic Analyses, 5-, 2-, 1-, and 0.4-Millibar Surfaces for July 1976 Through June 1977

Meteorological rocketsonde and satellite radiance data employed for analyses of a continuing series of high-altitude constant-pressure charts.

NASA RP-1032
N79-19569 226 pp
Avail NTIS 1978

Convective Rainfall Estimation From Digital GOES-1 Infrared Data

G. L. Sickler, A. H. Thompson

An investigation to determine the feasibility of developing an objective technique for estimating convective rainfall from digital GOES-1 infrared data.

NASA RP-1034
N79-31885 96 pp
Avail NTIS 1979

Survey and Bibliography on Attainment of Laminar Flow Control in Air Using Pressure Gradient and Suction

D. M. Bushnell, M. H. Tuttle

The survey, summaries of data for both ground and flight experiments, and abstracts of referenced reports.

NASA RP-1035
N79-33438 346 pp
Avail NTIS 1979

ALSEP Termination Report

J. R. Bates, W. W. Lauderdale, H. Kernaghan

Description of experiments and pertinent operational history, data processing and distribution, significant scientific findings.

NASA RP-1036
N79-22979 161 pp
Avail NTIS 1979

Collisionless Galaxy Simulations

F. Hohl, T. A. Zang, J. B. Miller

Computer experiments performed to determine the collapse and relaxation of initially spherical, uniform density and uniform velocity dispersion stellar systems.

NASA RP-1037
N79-24921 149 pp
Avail NTIS 1979

Review and Status of Liquid-Cooling Technology for Gas Turbines

G. J. Vanfossen, Jr., F. S. Stepka

Liquid-cooled systems and methods, assessment of the current technology status and requirements, comptehensive bibliography.

NASA RP-1038
N79-22427 31 pp
Avail NTIS 1979

Synthetic Aperture Radar/Landsat MSS Image Registration

H. E. Maurer, J. D. Oberholtzer, P. E. Anuta

Algorithms and procedures necessary to merge aircraft synthetic aperture radar (SAR) and Landsat multispectral scanner (MSS) imagery, design of a SAR/Landsat data merging system.

NASA RP-1039
N80-16405 233 pp
Avail NTIS 1979

NASA JSC Water Monitor System: City of Houston Field Demonstration

R. E. Taylor, E. L. Jeffers, D. H. Fricks

A water quality monitoring system with on-line and real time operation similar to the function in a spacecraft was investigated.

NASA RP-1041
N79-28062 57 pp
Avail NTIS 1979

Performance Evaluation Method for Dissimilar Aircraft Design Using the Square of the Wing Span for Non-dimensional Comparisons of Aerodynamic Characteristics

H. J. Walker

A rationale for using the square of the wingspan rather than the wing reference area as a basis for nondimensional comparisons of the aerodynamic and performance characteristics of aircraft that differ substantially in platform and loading.

NASA RP-1042
N79-30139 72 pp
Avail NTIS 1979

Processing of On-Board Recorded Data for Quick Analysis of Aircraft Performance—Rotor Systems Research Aircraft

N. H. Michaud

A system of independent computer programs for the processing of digitized pulse code modulated and frequency modulated data.

NASA RP-1043
N79-33191 326 pp
Avail NTIS 1979

Wind Study for High Altitude Platform Design

T. W. Strganac

An analysis of upper air winds to define the wind environment at potential operating altitudes for high altitude powered platform concepts.

NASA RP-1044
N80-12661 288 pp
Avail NTIS 1979

The Physiological Basis for Spacecraft Environmental Limits

J. M. Waligora

Limits for operational environments in terms of acceptable physiological changes: contaminants, temperature, acceleration, noise, rf radiation, and weightlessness.

NASA RP-1045
N80-15788 229 pp
Avail NTIS 1979

Measurement of Aircraft Speed and Altitude

W. Gracey

Problems involved in measuring speed and altitude with pressure-actuated instruments (altimeter, airspeed indicator, true-airspeed indicator, Machmeter, and vertical-speed indicator).

NASA RP-1046
N80-24296 511 pp
Avail NTIS 1980

Measurement Techniques for Trace Metals in Coal-Plant Effluents: A Brief Review

J. J. Singh

The strong features and limitations of techniques for determining trace elements in aerosols emitted from coal plants.

NASA RP-1047
N79-33611 34 pp
Avail NTIS 1979

Procedure for Extraction of Disparate Data From Maps Into Computer Data Bases

B. G. Junkin

A procedure for extracting disparate sources of data from geographic maps, and for the conversion of these data into a suitable format for processing on a computer-oriented information system.

NASA RP-1048
N79-33858 23 pp
Avail NTIS 1979

The Stratosphere: Present and Future

R. D. Hudson, E. I. Reed

The three basic elements of stratospheric science-laboratory measurements, atmospheric observations, and theoretical studies.

NASA RP-1049
N80-14641 443 pp
Avail NTIS 1979

Classical Aerodynamic Theory

R. T. Jones

Theories of incompressible potential flow and research on the aerodynamic forces on wing and wing sections of aircraft and on airship hulls.

NASA RP-1050
N80-15033 308 pp
Avail NTIS 1979

Thermodynamic Properties of Nitrogen Gas Derived From Measurements of Sound Speed for Cryogenic Wind Tunnels

B. Younglove, R. D. McCarty

A virial equation of state for nitrogen was determined by use of newly measured speed-of-sound data and existing pressure-density-temperature data in a multiproperty-fitting technique.

NASA RP-1051
N80-14257 56 pp
Avail NTIS 1979

Sealed-Cell Nickel-Cadmium Battery Applications Manual

W. R. Scott, D. W. Rusta

The design, procurement, testing, and application of aerospace quality, hermetically sealed nickel-cadmium cells and batteries.

NASA RP-1052
N80-16095 533 pp
Avail NTIS 1979

Results of the August 1977 Soviet and American Meteorological Rocketsonde Intercomparison Held at Wallops Island, Virginia

F. J. Schmidlin, J. R. Duke, A. I. Ivanovsky, et al.

A coordinated program of rocketsonde investigations along about 60° E and 70° W between the United States and U.S.S.R.

NASA RP-1053
N80-16682 193 pp
Avail NTIS 1980

Thunderstorm-Environment Interactions Determined With Three-Dimensional Trajectories

G. S. Wilson

Diagnostically determined three dimensional trajectories were used to reveal some of the scale interaction processes that occur between convective storms and their environment.

NASA RP-1054
N80-16675 163 pp
Avail NTIS 1980

Some Human Factors Issues in the Development and Evaluation of Cockpit Alerting and Warning Systems

R. J. Randle, Jr., W. E. Larsen, D. H. Williams

A set of general guidelines for evaluating newly developed cockpit alerting and warning system in terms of human factors issues.

NASA RP-1055
N80-15821 65 pp
Avail NTIS 1980

Orbiter Landing Loads Math Model Description and Correlation With ALT Flight Data

D. A. Hamilton, J. A. Schliesing, G. A. Zupp, Jr.

Results of the Space Shuttle approach and landing test to assess landing gear characteristics and performance and to verify landing dynamic analyses.

NASA RP-1056
N80-16074 27 pp
Avail NTIS 1980

Handbook of Lunar Materials

R. J. Williams, J. J. Jadwick

The physical, chemical, thermodynamic, and geologic data of lunar rocks, minerals, and processes.

NASA RP-1057
N80-16009 135 pp
Avail NTIS 1980

Stratospheric Aerosol Modification by Supersonic Transport Operations With Climate Implications

O. B. Toon, R. P. Turco, J. B. Pollack, et al.

The potential effects on stratospheric aerosols of supersonic transport emissions of sulfur dioxide gas and submicron size soot granules.

NASA RP-1058
N80-15726 20 pp
Avail NTIS 1980

Space Transportation System and Associated Payloads: Glossary, Acronyms, and Abbreviations

A collection of acronyms in everyday use concerning shuttle activities and a glossary of terms pertaining to the Space Transportation System.

NASA RP-1059
N81-16111 265 pp
Avail NTIS 1981

Subsonic Aircraft: Evolution and the Matching of Size to Performance

L. K. Loftin, Jr.

Methods for estimating the approximate size, weight, and power of aircraft intended to meet specified performance requirements for both jet-powered and propeller-driven aircraft.

NASA RP-1060
N80-29243 445 pp
Avail NTIS 1980

Outgassing Data for Spacecraft Materials

W. A. Campbell, Jr., R. S. Marriott, J. J. Park

A system for determining the mass loss in vacuum and for collecting the outgassed compounds. The various materials are compiled alphabetically and by likely usage.

NASA RP-1061
N80-30441 259 pp
Avail NTIS 1980

Report of the NASA Working Group On Tropospheric Program Planning

J. H. Seinfeld, F. Allario, W. R. Bandeen, et al.

Tropospheric impact on environmental quality, including public health, agriculture, climate, and weather. Final report.

NASA RP-1062
N81-23742 162 pp
Avail NTIS 1981

Bibliography of Supersonic Cruise Research (SCR) Program From 1977 to Mid-1980

S. Hoffman

Includes system studies and the following disciplines: propulsion, stratospheric emission impact, structures and materials, aerodynamic performance, and stability and control.

NASA RP-1063
N81-14973 106 pp
Avail NTIS 1980

Two-Dimensional Model Studies of the Effect of Supersonic Aircraft Operations on the Stratospheric Ozone Content

R. C. Whitten, W. J. Borucki, I. G. Poppoff, et al.

The relationships between supersonic aircraft, water vapor, and ozone are discussed.

NASA RP-1064
N81-17622 72 pp
Avail NTIS 1981

Motion About the Stable Libration Points in the Linearized, Restricted Three-Body Problem

D. Mittleman

The motion of a point particle in the neighborhood of a triangular libration point in the linearized, restricted problem of three bodies in the plane is described.

NASA RP-1065
N81-11970 159 pp
Avail NTIS 1980

NASA Wallops Flight Center GEOS-3 Altimeter Data Processing Report

H. R. Stanley, R. E. Dwyer

The procedures used to process the GEOS-3 radar altimeter data from raw telemetry data to a final user data product.

NASA RP-1066
N81-11438 131 pp
Avail NTIS 1980

Aerial Color Infrared Photography: Applications in Citriculture

C. H. Blazquez, F. W. Horn, Jr.

A handbook of photographic specifications and operational parameters.

NASA RP-1067
N81-21437 89 pp
Avail NTIS 1980

Viking Lander Imaging Investigation During Extended and Continuation Automatic Missions

K. L. Jones, M. Hensbaw, C. McMenomy, et al.

All images returned by Viking Lander 1 during the extended and continuation automatic phases of the Viking Mission. Final report.

Volume 1. Lander 1 Picture Catalog of Experiment Data Record

NASA RP-1068
N81-25012 655 pp
Avail NTIS 1981

Volume 2. Lander 2 Picture Catalog of Experiment Data Record

NASA RP-1068
N82-16028 566 pp
Avail NTIS 1981

An Atlas of Solar Spectra Between 1175 and 1950 Angstroms Recorded on Skylab With the NRL's Apollo Telescope Mount Experiment

L. Cohen

Microdensitometer tracings of spectra from a quiet region, an active region, a coronal hole, and a flare.

NASA RP-1069
N81-23004 566 pp
Avail NTIS 1981

A Comparative Analysis of Rawinsonde and Nimbus 6 and Tiros N Satellite Profile Data

J. R. Scoggins, W. E. Carle, K. Knight, et al.

Comparisons are made between rawinsonde and satellite profiles in seven areas for a wide range of surface and weather conditions.

NASA RP-1070
N81-15640 84 pp
Avail NTIS 1981

Atmospheric Structure Determined From Satellite Data

K. S. Knight, J. R. Scoggins

The capabilities of the Nimbus 6 satellite sounding data for use in synoptic analysis are considered and interpreted.

NASA RP-1071
N81-16678 107 pp
Avail NTIS 1981

Determination of Wind From Nimbus 6 Satellite Sounding Data

W. E. Carle, J. R. Scoggins

Objective methods of computing upper level and surface wind fields from Nimbus 6 satellite sounding data.

NASA RP-1072
N81-15639 83 pp
Avail NTIS 1981

Comparisons Between Nimbus 6 Satellite and Rawinsonde Soundings for Several Geographical Areas

N. M. Cheng, J. R. Scoggins

Rawinsonde temperature, satellite moisture data, and temperature-derived parameters.

NASA RP-1073
N81-16679 76 pp
Avail NTIS 1981

Preliminary Vibration, Acoustic, and Shock Design and Test Criteria for Components on the Lightweight External Tank (LWT)

A method of selecting applicable vibration, acoustic, and shock specifications.

NASA RP-1074
N81-19218 322 pp
Avail NTIS 1981

Magnetic Tape Recording for the Eighties

F. Kalil

Analog and digital magnetic tape recording; wear testing; care, handling, and management of magnetic tape; and coding techniques for high-density digital recording.

NASA RP-1075
N82-29579 176 pp
Avail NTIS 1982

Satellite Power System: Concept Development and Evaluation Program, Volume III. Power Transmission and Reception-Technical Summary and Assessment

R. H. Dietz, G. D. Arndt, J. W. Seyl, et al.

Efforts in the DOE/NASA concept development and evaluation program for the solar power satellite power transmission and reception system.

NASA RP-1076
N81-27622 280 pp
Avail NTIS 1981

The Theory and Practice of Estimating The Accuracy of Dynamic Flight-Determined Coefficients

R. E. Maine, K. W. Iliff

Means of assessing the accuracy of maximum likelihood parameter estimates obtained from dynamic flight data. Final report.

NASA RP-1077
N81-27865 63 pp
Avail NTIS 1981

The Landsat Tutorial Workbook

N. M. Short

A self-teaching training course in applying remote sensing combines a review of basics, a survey of systems, and a treatment of the principles and mechanics of image analysis by computers.

NASA RP-1078
N83-10458 554 pp
Avail GPO 1982

The Microwave Radiometer Spacecraft: A Design Study

R. L. Wright

Mission and spacecraft requirements, design and structural concepts, electromagnetic concepts, and control concepts.

NASA RP-1079
N82-16153 239 pp
Avail NTIS 1981

ATS-6 Engineering Performance Report

R. O. Wales

Mechanical subsystems, mechanical design requirements, separation and deployment mechanisms, design and performance evaluation, and the television camera reflector monitor. Final report.

Volume 1. Program and System Summaries: Mechanical and Thermal Details

NASA RP-1080
N82-16147 272 pp
Avail NTIS 1981

Volume 2. Orbit and Attitude Controls

NASA RP-1080
N82-16148 289 pp
Avail NTIS 1981

Volume 3. Telecommunications and Power

NASA RP-1080
N82-16149 298 pp
Avail NTIS 1981

Volume 4. Television Experiments

NASA RP-1080
N82-16150 149 pp
Avail NTIS 1981

Volume 5. Propagation Experiments

NASA RP-1080
N82-16151 302 pp
Avail NTIS 1981

Volume 6. Scientific Experiments

NASA RP-1080
N82-16152 166 pp
Avail NTIS 1981

SAM 2 Measurements of the Polar Stratospheric Aerosol

M. P. McCormick

A representative sample of the first 6 months of data to be used in atmospheric and climatic studies. Data for April 1979 to October 1979 are found in Volume 2 (NASA RP-1088).

Volume 1. October 1978 to April 1979

NASA RP-1081
N82-13592 78 pp
Avail NTIS 1981

Propagation Effects Handbook for Satellite Systems Design

R. D. Kaul, R. G. Wallace

The major propagation effects experienced on Earth-space communications paths. Attenuation due to rain is dealt with in detail.

NASA RP-1082
N82-15270 423 pp
Avail NTIS 1981

NOSS Altimeter Algorithm Specifications

D. W. Hancock, R. G. Forsythe, J. McMillan

Descriptions of algorithms required for altimeter processing include title, description, inputs/outputs, general algebraic sequences and data volume.

NASA RP-1083
N82-16683 112 pp
Avail NTIS 1982

Atlas of Absorption Lines From 0 to 17 900 cm^{-1}

J. H. Park, L. S. Rothman, C. P. Rinsland, et al.

Plots of absorption line strength versus line position are shown for 20 atmospheric gases.

NASA RP-1084
N82-15853 209 pp
Avail NTIS 1981

A General Solution to the Hidden-Line Problem

D. R. Hedgley, Jr.

The theoretical solution to the requirements for computer-generated perspective projections of three dimensional objects.

NASA RP-1085
N82-21907 17 pp
Avail NTIS 1982

Guidelines for Spaceborne Microwave Remote Sensors

V. Litman, J. Nicholas

Provides information and support to the spaceborne remote sensing and frequency management communities.

NASA RP-1086
N82-19647 87 pp
Avail NTIS 1982

Handbook of Sensor Technical Characteristics

S. Tanner

Space and terrestrial applications for remote sensor systems.

NASA RP-1087
N82-29577 333 pp
Avail NTIS 1982

SAM 2 Measurements of the Polar Stratospheric Aerosol

M. P. McCormick, H. M. Steele, P. Hamill

A representative sample of the second 6 months of data to be used in atmospheric and climatic studies. Data for October 1978 to April 1979 are found in Volume 1 (NASA RP-1081).

Volume 2. April 1979 to October 1979

NASA RP-1088
N82-19734 78 pp
Avail NTIS 1982

Global Differential Geometry: An Introduction for Control Engineers

B. F. Doolin, C. F. Martin

Basic concepts and terminology of modern global differential geometry. An appendix reviews concepts needed for vector calculus.

NASA RP-1091
N82-29904 69 pp
Avail NTIS 1982

Standard Tests for Toughened Resin Composites

Toughened resin systems are evaluated to achieve commonality for certain tests used to characterize toughened resin composites. Standardized specifications for five tests are described.

NASA RP-1092
N82-24301 29 pp
Avail NTIS 1982

A Catalog of Selected Viking Orbiter Images

R. L. Turner, R. D. Carroll

A collection of photomosaics designed to facilitate identification and location of the various pictures with respect to the surface of Mars.

NASA RP-1093
N83-25636 402 pp
Avail NTIS 1983

User's Guide for the Solar Backscattered Ultraviolet (SBUV) Instrument First-Year Ozone-S Data Set

A. J. Fleig, K. F. Klenk, P. K. Bhartia, et al.

Total-ozone and ozone vertical profile results from November 1978 to November 1979.

NASA RP-1095
N82-29826 69 pp
Avail NTIS 1982

User's Guide for the Total-Ozone Mapping Spectrometer (TOMS) Instrument First-Year Ozone-T Data Set

A. J. Fleig, K. F. Klenk, P. K. Bhartia, et al.

The TOMS experiment and algorithms; detailed information on the data available on computer tape.

NASA RP-1096
N82-28880 50 pp
Avail NTIS 1982

NASA Catalogue of Lunar Nomenclature

L. A. Andersson, E. A. Whitaker

Includes letter designations for subsidiary craters. Listed features are craters, noncrater features, and minor and miscellaneous features.

NASA RP-1097
N83-12031 172 pp
Avail NTIS 1982

Ozone Climatology Series

D. F. Heath, A. J. Fleig, A. J. Miller, et al.

Contours and gridded values are given for data derived from observations with the Backscattered Ultraviolet instrument on Nimbus-4 for the Northern and Southern Hemispheres.

Volume 1 Atlas of Total Ozone, April 1970–December 1976

NASA RP-1098
N83-16992 180 pp
Avail NTIS 1982

Lithium/Sulfur Dioxide Cell and Battery Safety

G. Halpert, A. Anderson

Includes cell design and appropriate definitions, and a safety precautions checklist provided to guide the user.

NASA RP-1099
N83-14684 19 pp
Avail NTIS 1982

The Snowmelt-Runoff Model (SRM) User's Manual

J. Martinec, A. Rango, E. Major

Model structure, conditions of application, and data requirements are described.

NASA RP-1100
N83-23660 120 pp
Avail NTIS 1983

Transport Properties of Oxygen

H. M. Roder

Tables of viscosity, thermal conductivity, and thermal diffusivity of oxygen are presented.

NASA RP-1102
N83-24800 86 pp
Avail NTIS 1983

Stochastic Differential Equations and Turbulent Dispersion

P. A. Durbin

Theories of continuous stochastic processes and modeling turbulent transport are presented.

NASA RP-1103
N83-22546 72 pp
Avail NTIS 1983

Perfect Bell Nozzle Parametric and Optimization Curves

J. L. Tuttle, D. H. Blount

Nozzle contour data for untruncated Bell nozzles are provided.

NASA RP-1104
N83-24549 32 pp
Avail NTIS 1983

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Proceedings of the SCAR Conference

Aerodynamics, stability and control, propulsion, environmental factor, airframe structures and materials, design integration.

Part 1
NASA CP-1
N77-17996 478 pp
Avail NTIS 1976

Part 2
NASA CP-1
N77-18019 547 pp
Avail NTIS 1976

The Structure and Content of the Galaxy and Galactic Gamma Rays

C. E. Fichtel, F. W. Stecker

Gamma radiation investigations by COS-B and SAS-2 satellites, data from CO surveys of the galaxy and the galactic distribution of pulsars, theories of galactic gamma ray emission.

NASA CP-2
N77-20977 356 pp
Avail NTIS 1977

Systems Reliability Issues for Future Aircraft

Reliability of adaptive controls for future aircraft.

NASA CP-3
N77-22808 212 pp
Avail NTIS 1975

Inversion Methods in Atmospheric Remote Sounding

A. Deepak

The mathematical theory of inversion methods applied to the remote sounding of atmospheric temperature, humidity, and aerosol constituents.

NASA CP-4
N78-12586 609 pp
Avail NTIS 1977

The Use of Nonhuman Primates in Space

R. C. Simmonds, G. H. Bourne

Space related biomedical research involving nonhuman primates. Conference, December 1974.

NASA CP-5
N78-11663 390 pp
Avail NTIS 1977

Application of Remote Sensing to the Chesapeake Bay Region

W. T. Chen, G. W. Freas, Jr., G. D. Hickman, et al.

Part 1. Executive Summary
NASA CP-6
N78-23537 47 pp
Avail NTIS 1978

Part 2. Proceedings
NASA CP-6
N78-21526 388 pp
Avail NTIS 1978

Fourth NASA Inter-Center Control Systems Conference

Space vehicle control applications; aircraft guidance, control, and handling qualities. Conference, November 1969.

NASA CP-7
N78-23010 504 pp
Avail NTIS 1978

Advances in Engineering Science

Volume 1. Materials science, fracture mechanics, impact and vibration testing.

NASA CP-2001
N77-10230 360 pp
Avail NTIS 1976

Volume 2. Structural dynamics.

NASA CP-2001
N77-10265 457 pp
Avail NTIS 1976

Volume 3. Acoustics, environmental modeling, energy technology.

NASA CP-2001
N77-10305 464 pp
Avail NTIS 1976

Volume 4. Inviscid flow, viscous flow, aircraft aerodynamics, fluid mechanics, propulsion and combustion, flight dynamics and control.

NASA CP-2001
N77-10340 521 pp
Avail NTIS 1976

Flight Mechanics/Estimation Theory Symposium

A. Fuchs

Computation of relative motion, rapid satellite life-time estimation, mission analysis system design, satellite attitude prediction.

NASA CP-2002
N78-76855 265 pp
1975

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Free Drifting Buoys

Tracking systems and techniques; deployment and retrieval; simulation, sensors, and data; recent experience and plans.

NASA CP-2003
N77-16675 378 pp
Avail NTIS 1974

Atmospheric Aerosols: Their Optical Properties and Effects

Computations based on thermodynamic equilibrium and Mie theory.

NASA CP-2004
N77-13563 316 pp
Avail NTIS 1976

Supplement. Digest of technical papers.

NASA CP-2004
N77-13564 46 pp
Avail NTIS 1976

Aircraft Piston Engine Exhaust Emission Symposium

Emission measurement problems, data reduction procedures, flight testing, emission reduction techniques.

NASA CP-2005
N77-17081 373 pp
Avail NTIS 1976

Proceedings and Findings of 1976 Workshop on Ride Quality—Passenger Acceptance of Transportation Systems

A. R. Kuhlthau

NASA CP-2006
N77-27710 86 pp
Avail NTIS 1976

Ninth Conference on Space Simulation

Spacecraft testing; facilities and test equipment; system and subsystem test; life sciences, medicine, and space; physical environmental factors; chemical environmental factors; contamination; space physics; thermal protection.

NASA CP-2007
N79-19013 470 pp
Avail NTIS 1977

High Reynolds Number Research

D. D. Baals

Fundamental aerodynamics questions for which high Reynolds number experimental capability is required; design features of the NASA Langley Transonic Facility.

NASA CP-2009
N77-27139 185 pp
Avail NTIS 1977

Terrestrial Photovoltaic Measurements

Terrestrial solar irradiance, solar simulation and reference cell calibration, cell and array measurement procedures.

NASA CP-2010
N77-30521 393 pp
Avail NTIS 1976

Proceedings of the 1977 MACSYMA Users' Conference

Technical aspects of MACSYMA, a large symbolic and algebraic system.

NASA CP-2012
N77-28750 596 pp
Avail NTIS 1977

Summary Report: Workshop on Vehicle Ride Quality

A. R. Kuhlthau, A. W. Wichansky

Procedures to optimize urban transportation with emphasis on vehicle ride quality. Workshop, August 1975.

NASA CP-2013
N78-11705 167 pp
Avail NTIS 1977

Essays on the History of Rocketry and Astronautics: Proceedings of the Third Through the Sixth History Symposia of the International Academy of Astronautics

R. C. Hall

Early solid propellant rocketry, rocketry and astronautics after 1880, development of liquid and solid propellant rockets from 1880 to 1945, rocketry and astronautics after 1945. Symposia, October 1969, October 1970, September 1971, October 1972.

Volume 1
NASA CP-2014
N77-33030 244 pp
Avail GPO 1977

Volume 2
NASA CP-2014
N77-33048 476 pp
Avail GPO 1977

Standardization, Certification, Maintenance, and Dissemination of Large-Scale Engineering Software Systems

T. G. Toridis, H. G. McComb, Jr., K. Khozeimeh

NASA CP-2015
N77-33876 103 pp
Avail NTIS 1977

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611

Lean Premixed/Prevaporized Combustion

A. H. Lefebvre

Recommendations on the status and application of lean premixed/prevaporized combustion to the aircraft gas turbine for the reduction of pollutant emissions.

NASA CP-2016
N77-33297 46 pp
Avail NTIS 1977

An Assessment of Technology for Turbojet Engine Rotor Failures

E. A. Witmer

Design considerations, objectives, and approaches in containing rotor burst debris; methods for determining the fracture resistance of various materials used in providing lightweight shielding from fragment impact.

NASA CP-2017
N78-10068 425 pp
Avail NTIS 1977

Sixth NASTRAN Users' Colloquium

NASTRAN programming and substructuring methods, fluids and thermal applications.

NASA CP-2018
N78-12443 473 pp
Avail NTIS 1977

Proceedings of the ASPE/MSFC Symposium on Engineering and Productivity Gains From Space Technology

Aerospace technology findings in regard to nonaerospace applications, energy generation, materials and processes, Earth observation, advances and benefits of electronics.

NASA CP-2019
N77-30273 279 pp
Avail NTIS 1977

Solar Cell High Efficiency and Radiation Damage

Silicon solar cell analysis and fundamental measurements, silicon cell technology, gallium arsenide research and technology, radiation effects on silicon and gallium arsenide cells.

NASA CP-2020
N78-13527 221 pp
Avail NTIS 1977

Aircraft Engine Emissions

Components, controls, energy efficient engine designs, noise and pollution reduction.

NASA CP-2021
N78-11063 452 pp
Avail NTIS 1977

NASA Workshop on Solar-Terrestrial Studies From a Manned Space Station

The mechanism of the solar radiation and its effect on the environment, instrumentation requirements in the exploration of the solar and terrestrial system.

NASA CP-2024
N77-32549 42 pp
Avail NTIS 1977

Agricultural Aviation Research

H. L. Chevalier, L. F. Bouse

The current state of the art of agricultural aviation, potentially productive short and long range research and development areas, communications between research scientists and engineers involved in agricultural research.

NASA CP-2025
N78-12999 151 pp
Avail NTIS 1977

AIAA/MSFC Symposium on Space Industrialization: Proceedings

Current and projected technologies required for utilizing extraterrestrial environments to produce energy, information, or materials and provide services of value on Earth or to Earth.

NASA CP-2026
N78-18088 627 pp
Avail NTIS 1976

Proceedings of the 1977 NASA/ISHM Microelectronics Conference

S. V. Caruso

Current and future requirements for research development, manufacturing, and education in the field of hybrid microelectronic technology.

NASA CP-2027
N78-16266 170 pp
Avail NTIS 1977

Proceedings of the First Annual Meteorological and Environmental Inputs to Aviation Systems Workshop

D. W. Camp, W. Frost

Aircraft design, simulation, and general aviation.

NASA CP-2028
N78-19711 335 pp
Avail NTIS 1977

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Third National Aeronautics and Space Administration Weather and Climate Program Science Review

E. R. Kreins

Research results of developing experimental and prototype operational systems, sensors, and space facilities for monitoring and understanding the atmosphere.

NASA CP-2029
N79-20575 304 pp
Avail NTIS 1977

Active Microwave Users Workshop Report

R. E. Matthews

Seasat land experiments, program planning, synthetic aperture radar data processing, applications.

NASA CP-2030
N78-21562 300 pp
Avail NTIS 1978

Summer Workshop on Near-Earth Resources

J. R. Arnold, M. B. Duke

The possible large scale use of extraterrestrial resources to construct structures in space or to return to Earth as supplements for terrestrial resources.

NASA CP-2031
N78-16973 107 pp
Avail NTIS 1978

Future Computer Requirements for Computational Aerodynamics

Recent advances in computational aerodynamics, potential benefits of a national aerodynamic simulation facility.

NASA CP-2032
N78-19778 515 pp
Avail NTIS 1978

Jet Aircraft Hydrocarbon Fuels Technology

J. P. Longwell

Prediction of tradeoffs among fuel refining, distribution, and aircraft operating costs; combustor liner temperature and emissions studies; and practical simulator investigations of the effect of high freezing point and low thermal stability fuels on aircraft fuel systems.

NASA CP-2033
N78-19325 64 pp
Avail NTIS 1978

Wind Turbine Structural Dynamics

D. R. Miller

Methods for calculating dynamic loads, aeroelasticity stability, wind loads, both steady and transient, critical design conditions, drive train dynamics, behavior of operating wind turbines.

NASA CP-2034
N78-19616 280 pp
Avail NTIS 1978

Large Space Systems Technology

E. C. Naumann, A. Butterfield

Mission requirements, structural concepts, materials, structural alignment, thermal control, metrology, technological forecasting.

Volume 1
NASA CP-2035
N79-10078 540 pp
Avail NTIS 1978

Volume 2
NASA CP-2035
N79-10097 505 pp
Avail NTIS 1978

CTOL Transport Technology, 1978

Part 1. Aircraft propulsion, structures and materials, laminar flow control.

NASA CP-2036
N78-27046 516 pp
Avail NTIS 1978

Part 2. Advanced aerodynamics and active controls, operations, and safety, advanced systems, energy efficiency.

NASA CP-2036
N78-29046 405 pp
Avail NTIS 1978

Guntersville Workshop on Solar-Terrestrial Studies

The effects of solar activity on geomagnetic activity; instrument requirements for interdisciplinary joint observational studies of the magnetosphere, the atmosphere, Sun-weather relationships.

NASA CP-2037
N78-19600 71 pp
Avail NTIS 1977

The 11th Aerospace Mechanisms Symposium

Spacecraft and missile components such as tail assemblies, radiometers, magnetometers.

NASA CP-2038
N79-21374 243 pp
Avail NTIS 1977

Proceedings of the USAF/NASA International Spacecraft Contamination Conference

J. M. Jemiola

Spacecraft modeling, determination of basic material properties, thruster plume characteristics and modeling, contamination prevention and control, contamination kinetics and effects.

NASA CP-2039
N79-25048 1219 pp
Avail NTIS 1978

The MSFC/UAH Data Management Symposium

A. Castelli

Data bases, digital systems, satellite transmissions, and telecommunications.

NASA CP-2040
N78-74659 423 pp
Avail NTIS 1978

The 1977 Goddard Space Flight Center Battery Workshop

Results of testing, analysis, and development of the sealed nickel cadmium cell system.

NASA CP-2041
N79-21565 579 pp
Avail NTIS 1977

Emerging Energy Alternatives for the Southeastern States

E. K. Stefanakos

Solar energy, wood energy, novel energy sources, agricultural and industrial process heat, waste utilization, energy conservation, ocean thermal energy conversion.

NASA CP-2042
N78-28615 149 pp
Avail NTIS 1978

Stratcom 8 Data Workshop and Supplement

E. L. Reed

The study of stratospheric photochemistry involving ozone, with secondary objectives including a study of the balloon environment, comparison of independent techniques for the measurement of O_3 and NO, development of new sensor systems.

NASA CP-2043
N79-23461 137 pp
Avail NTIS 1978

Planning for Airport Access: An Analysis of the San Francisco Bay Area

J. S. Dajani, J. V. Jucker, J. L. Jones

A description of the airport area, its current transportation capabilities, recommendations for future access planning.

NASA CP-2044
N79-10942 300 pp
Avail NTIS 1978

Advanced Technology Airfoil Research

Comprehensive review of airfoil research; development of computational aerodynamic codes for airfoil analysis and design, development of experimental facilities and test techniques, airfoil applications.

Volume 1, Part 1
NASA CP-2045
N79-20030 454 pp
Avail NTIS 1979

Volume 1, Part 2
NASA CP-2045
N79-19989 303 pp
Avail NTIS 1978

Volume 2
NASA CP-2046
N80-21283 262 pp
Avail NTIS 1979

Proceedings of the NASA/Florida Institute of Technology Environmental Engineering Conference on Nitrogen Tetroxide With Emphasis on Space Shuttle

E. L. Rhodes

Methods of reducing the user hazards of nitrogen tetroxide, Kennedy Space Center developments in N_2O_4 control for the Space Shuttle, life support equipment and transportation.

NASA CP-2049
N79-20424 203 pp
Avail NTIS 1978

Flight Mechanics/Estimation Theory Symposium

Satellite attitude determination and control, orbit determination, onboard and ground attitude determination procedures, effect of atmosphere on Venus orbiter navigation, satellite-to-satellite tracking, satellite onboard navigation using global positioning system data.

NASA CP-2050
N79-14121 289 pp
Avail NTIS 1978

Hyperthermia as an Antineoplastic Treatment Modality

S. A. T. Long, J. Shaeffer, A. M. El-Mahdi

Preclinical evaluation of hyperthermia for treating tumorous cancers. Bioassay, chemotherapy, heat treatment, neoplasms, and radiobiology are among treatments discussed.

NASA CP-2051
N79-10728 96 pp
Avail NTIS 1978

Helicopter Acoustics

Noise regulation concepts, design, operations and testing for noise control, helicopter noise prediction, research tools and measurements.

Part 1
NASA CP-2052
N78-32816 399 pp
Avail NTIS 1978

Part 2
NASA CP-2052
N79-10843 438 pp
Avail NTIS 1978

Asteroids: An Exploration Assessment

D. Morrison, W. C. Wells

Current state of asteroid science, need for future space missions to gain more knowledge on asteroid relationship to solar system formation.

NASA CP-2053
N78-29007 295 pp
Avail NTIS 1978

YF-12 Experiment Symposium

Propulsion system performance, inlet time varying distortion, structures, aircraft controls, propulsion controls, and aerodynamics.

NASA CP-2054
N78-32055 286 pp
Avail NTIS 1978

Engineering and Scientific Data Management

The application of data management systems to engineering and scientific data.

NASA CP-2055
N78-33776 255 pp
Avail NTIS 1978

Exploratory Meeting on Atmospheric Electricity and Severe Storms

W. W. Vaughan

Atmospheric electricity and its relationship to severe storms, the feasibility of developing a set of instruments for either a Space Shuttle or an unmanned satellite, the scientific rationale which would warrant further in-depth assessment, involvement and development of supporting activities by NASA.

NASA CP-2056
N78-29669 30 pp
Avail NTIS 1978

Proceedings of the 2nd Annual Workshop on Meteorological and Environmental Inputs to Aviation Systems

W. Frost, D. W. Camp, D. E. Durham

The major objectives of the workshop were to satisfy such needs of the sponsoring agencies as the expansion of understanding and knowledge of the interactions of the atmosphere with aviation systems, the better definition and implementation of services to operators, and the collection and interpretation of data for establishing operational criteria.

NASA CP-2057
N79-17413 259 pp
Avail NTIS 1978

Future Orbital Power Systems Technology Requirements

Comment on current and planned programs and opportunities for technology investment. Topics include orbital space stations, energy requirements, systems engineering, and technological forecasting.

NASA CP-2058
N79-10122 195 pp
Avail NTIS 1978

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Research in Computerized Structural Analysis and Synthesis

H. G. McComb, Jr.

Computer applications in dynamic structural analysis and structural design modeling.

NASA CP-2059
N79-10448 224 pp
Avail NTIS 1978

The 14th Annual Conference on Manual Control: Digital Simulation of Human Operator Dynamics

Human operator dynamics during actual manual control or while monitoring the automatic control systems involved in air-to-air tracking, automobile driving, the operator of undersea vehicles, remote handling.

NASA CP-2060
N79-15588 692 pp
Avail NTIS 1978

Avionics and Controls Research and Technology

H. A. Rediess, D. E. McIver

Technology needs and opportunities, the role of NASA in avionics and controls research.

NASA CP-2061
N79-15898 84 pp
Avail NTIS 1979

Seventh NASTRAN User's Colloquium

Fluids and thermal applications, NASTRAN programming, substructuring methods, unique new applications, general auxiliary programs, specific applications, new capabilities.

NASA CP-2062
N78-32466 499 pp
Avail NTIS 1978

Human Neurological Development: Past, Present and Future

R. Pelligra

Vision; vestibular function; intelligence; nutrition; treatment of neurological disfunctions, coma, and convulsive seizures.

NASA CP-2063
N79-15887 60 pp
Avail NTIS 1978

Tools for Embedded Computing Systems Software

Tools and the software environment; tools and software requirements, design, and specification; tools and language processors; tools and verification and validation.

NASA CP-2064
N79-13736 137 pp
Avail NTIS 1978

Recent Advances in Structures for Hypersonic Flight

Engine structures, cooled airframe structures, hot structures, thermal protection systems, cryogenic tankage structures, cryogenic insulation, analysis of thermal structures.

Part 1
NASA CP-2065
N79-21422 533 pp
Avail NTIS 1978

Part 2
NASA CP-2065
N79-21435 408 pp
Avail NTIS 1978

Ozone Contamination in Aircraft Cabins

The problem and solution to the physical ozone irritation caused by ozone concentrations in the cabins of high-altitude aircraft.

NASA CP-2066
N79-21021 81 pp
Avail NTIS 1979

The Rotary Engine: A Candidate for General Aviation

Nonturbine engine research programs for general aviation, future requirements for general aviation powerplants.

NASA CP-2067
N79-15961 190 pp
Avail NTIS 1978

The Saturn System

D. M. Hunten, D. Morrison

Mission planning for orbiter and entry probes of the Saturn system emphasizes scientific studies of Saturn, its satellites, its rings, and its magnetosphere.

NASA CP-2068
N79-16758 423 pp
Avail NTIS 1978

Proceedings of the Workshop on an Electromagnetic Positioning System in Space

W. A. Oran

Study of metallic glasses, investigations of the properties of high temperature materials.

NASA CP-2069
N79-13069 25 pp
Avail NTIS 1978

Radar, Insect Population Ecology, and Pest Management

C. R. Vaughn, W. Wolf, W. Klassen

The potential role of radar in insect ecology studies and pest management and phenomena with insect movement.

NASA CP-2070
N79-19592 252 pp
Avail NTIS 1979

119

Spacecraft Charging Technology, 1978

The interaction of the aerospace environment with spacecraft surfaces and onboard, high voltage spacecraft systems operating over a wide range of altitudes from low Earth orbit to geosynchronous orbit.

NASA CP-2071
N79-24001 908 pp
Avail NTIS 1979

Second International Colloquium on Mars: Abstracts for a Colloquium

NASA CP-2072
N79-16757 97 pp
Avail NTIS 1979

Soil Moisture Workshop

J. L. Heilman, D. G. Moore, T. J. Schmugge, et al.

The objectives of the workshop were to evaluate the state of the art of remote sensing of soil moisture, examine the needs of potential users, and make recommendations concerning the future of soil moisture research and development.

NASA CP-2073
N79-16329 219 pp
Avail NTIS 1978

Carbon Fiber Risk Analysis

The scope and status of the effort to assess the risks associated with the accidental release of carbon/graphite fibers from civil aircraft.

NASA CP-2074
N79-22196 245 pp
Avail NTIS 1979

Government/Industry Workshop on Payload Loads Technology

The problems of balancing the design criteria between launch and orbit operations and developing analytical techniques that are reliable, accurate, efficient, and low cost.

NASA CP-2075
N79-20162 874 pp
Avail NTIS 1978

Fourth National Aeronautics and Space Administration Weather and Climate Program Science Review

E. R. Kreins

Scientific research on severe storms and local weather, global weather, and climate.

NASA CP-2076
N79-20633 396 pp
Avail NTIS 1979

Quiet Powered-Lift Propulsion

New propulsion technology for powered-lift aircraft systems.

NASA CP-2077
N80-13127 426 pp
Avail NTIS 1979

Premixed Prevaporized Combustor Technology Forum

Engine interfaces, fuel-air preparation, autoignition, lean combustion, concept design studies.

NASA CP-2078
N79-24994 262 pp
Avail NTIS 1979

Graphite/Polyimide Composites: Conference on Composites for Advanced Space Transportation Systems

H. B. Dexter, J. G. Davis, Jr.

Fabrication, adhesives, test methods, structural integrity, design and analysis, advanced technology developments, high temperature polymer research, the state of the art of graphite/polyimide composites.

NASA CP-2079
N79-30297 449 pp
Avail NTIS 1979

The 12th Aerospace Mechanisms Symposium

Boom release mechanisms, separation on Space Shuttle orbiter/Boeing 747 aircraft, payload handling, spaceborne platform support, deployment of spaceborne antennas and telescopes.

NASA CP-2080
N79-21352 241 pp
Avail NTIS 1979

The 13th Aerospace Mechanisms Symposium

A. C. Bond

Propulsion; motion compensation; instrument pointing and adjustment; centrifuge testing; bearing design; vehicle braking; cargo handling; devices for satellite, missile, and hypersonic-wind-tunnel applications; space shuttle mechanical and thermal protection systems; techniques for building large space structures.

NASA CP-2081
N79-22539 300 pp
Avail NTIS 1979

120

Flight Mechanics/Estimation Theory Symposium With Application to Autonomous Navigation and Attitude/Orbit Determination

A. J. Fuchs

Landsat landmark data, star sensing and pattern recognition, filtering algorithms for global positioning system, determining orbital elements for geostationary satellites.

NASA CP-2082
N79-26082 347 pp
Avail NTIS 1979

Laser Doppler Velocimetry Workshop

R. B. Owen

The potential of laser Doppler velocimetry as a technique for use in mapping flows in the several fluid systems under development for doing research on low-gravity processes.

NASA CP-2084
N79-22455 12 pp
Avail NTIS 1979

The Science and Technology of Low Speed and Motorless Flight

P. W. Hanson

Low speed aerodynamics, new materials applications and structural concepts, advanced flight instrumentation, sailplane optimal flight techniques, self-launching and ultralight glider technology.

Part 1
NASA CP-2085
N79-23889 299 pp
Avail NTIS 1979

Part 2
NASA CP-2085
N79-27070 297 pp
Avail NTIS 1979

Aircraft Icing

B. J. Blaha

NASA CP-2086
N79-23912 147 pp
Avail NTIS 1979

Fundamentals of Gas Turbine Combustion

M. Gerstein

Atomization and vaporization, combustion chemistry, combustion dynamics, combustion modeling.

NASA CP-2087
N79-25016 52 pp
Avail NTIS 1979

The 11th Annual Battery Workshop

The development, properties, and testing of nickel cadmium, metal hydrogen, and lithium systems.

NASA CP-2088
N79-28669 545 pp
Avail NTIS 1978

Space Missions to Comets

M. Neugebauer, D. K. Yeomans, J. C. Brandt, et al.

The broad impact of a cometary mission with particular emphasis on scientific interest in a fly-by mission to Halley's comet and a rendezvous with Tempel 2.

NASA CP-2089
N80-11972 229 pp
Avail NTIS 1979

Middle Atmosphere Electrodynamics: Report of the Workshop on the Role of the Electrodynamics of the Middle Atmosphere on Solar Terrestrial Coupling

N. C. Maynard

Review of the status of middle atmosphere electrodynamics and recommendations for future research.

NASA CP-2090
N79-25608 268 pp
Avail NTIS 1979

Proceedings of Workshops to Define Engineering Requirements for a Space Vacuum Research Facility

W. A. Oran, S. T. Wu, R. W. Hoffman

The construction of a molecular wake shield for the Shuttle orbiter, a collision model with a program depicting emitted molecular density around the spacecraft.

NASA CP-2091
N79-26076 152 pp
Avail NTIS 1979

Aeropropulsion 1979

State-of-the-art technology in aeronautical propulsion noise and air pollution control techniques, advances in supersonic propulsion for transport aircraft, composite materials and structures for reliable engine components, engine design for improved fuel consumption.

NASA CP-2092
N80-10205 464 pp
Avail NTIS 1979

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Workshop on Thrust Augmenting Ejectors

A. E. Lopez, D. G. Koenig, D. S. Green, et al.

The state of the art of ejector technology and the direction of future studies.

NASA CP-2093
N80-10107 509 pp
Avail NTIS 1979

Conference on Fire Resistant Materials: A Compilation of Presentations and Papers

D. A. Kourtides, G. A. Johnson

Large-scale testing, fire toxicology, polymeric materials, fire modeling.

NASA CP-2094
N79-31166 287 pp
Avail NTIS 1979

Proceedings: Workshop on the Need for Lightning Observations From Space

L. S. Christensen, W. Frost, W. W. Vaughan

Satellite instrumentation specifically designed for indicating the characteristics of lightning are of value in severe storms research, in engineering and operational problem areas, and in providing information on atmospheric electricity and its role in meteorological processes.

NASA CP-2095
N79-30869 255 pp
Avail NTIS 1979

Implications of Fuel-Efficient Vehicles on Ride Quality and Passenger Acceptance

A. M. Wichansky, A. R. Kuhlthau

Ride quality and passenger acceptance problems associated with enhanced fuel efficiency of automobiles and aircraft, shifts in intermediate range (100–500 miles) travel from automobiles to public transit.

NASA CP-2096
N80-18990 120 pp
Avail NTIS 1979

Solar Cell High Efficiency and Radiation Damage, 1979

Progress in the effort to increase the end-of-life efficiency of solar cells for space use, silicon solar cell efficiency, radiation effects, gallium arsenide cells.

NASA CP-2097
N79-32640 290 pp
Avail NTIS 1979

Study of the Solar Cycle From Space

The objectives of and benefits to be derived from a program of solar cycle research, the role of space observations, including crucial missions, experiments, and the theoretical advances.

NASA CP-2098
N80-17944 366 pp
Avail NTIS 1980

Earth Radiation Budget Science

Climate modeling, climate diagnostics, radiation modeling, radiation variability and correlation studies, cloudiness and the radiation budget, and radiation budget and related measurements in 1985 and beyond.

NASA CP-2100
N79-32797 79 pp
Avail NTIS 1978

Flight Technology Improvement—Spaceborne Optical Radiometric Instruments, Attitude Control, and Electromechanical and Power Subsystems

Optical radiometric instruments and calibration, attitude control and determination, electromechanical and power subsystem.

NASA CP-2101
N80-13152 76 pp
Avail NTIS 1979

Conference of Remote Sensing Educators (CORSE-78)

Methods of improving the teaching of remote sensing, Earth resources, image interpretation, data processing concepts.

NASA CP-2102
N80-20003 664 pp
Avail NTIS 1978

Models of Human Operators in Vision Dependent Tasks

M. C. Waller

Descriptive overviews of some existing models, and techniques of modeling the human operator.

NASA CP-2103
N79-33838 86 pp
Avail NTIS 1979

Proceedings: Third Annual Workshop on Meteorological and Environmental Inputs to Aviation Systems

D. W. Camp, W. Frost

Training, flight operations, accident investigation, air traffic control, airports, winds and wind shear, icing and frost, atmospheric electricity and lightning, fog, visibility, ceilings, turbulence.

NASA CP-2104
N80-14633 190 pp
Avail NTIS 1979

422

Summary of the NASA/MSFC FY-79 Severe Storm and Local Weather Research Review—Cloud Physics, Atmospheric Electricity, and Mesoscale/Storm Dynamics Research

NASA CP-2105
N79-33722 92 pp
Avail NTIS 1979

Large Wind Turbine Design Characteristics and R&D Requirements

S. Lieblein

Large wind turbine research and development.

NASA CP-2106
N80-16453 459 pp
Avail NTIS 1979

Nuclear-Pumped Lasers—Efficient Conversion of Energy Liberated in Nuclear Reactions to Coherent Radiation

Nuclear-pumped laser modeling, nuclear volume and foil excitation of laser plasmas, proton beam simulations, nuclear flashlamp excitation, reactor laser systems studies.

NASA CP-2107
N80-13438 140 pp
Avail NTIS 1979

Supersonic Cruise Research 1979

Part 1. Aerodynamics, stability and control, and propulsion.

NASA CP-2108
N81-17981 542 pp
Avail NTIS 1980

Part 2. Airframe structure and materials technology.

NASA CP-2108
N81-18005 407 pp
Avail NTIS 1980

Remote Sensing and Problems of the Hydrosphere

E. D. Goldberg

The classification of lakes, identification and quantification of major functional groups of phytoplankton, sources and sinks of biochemical factors, and temporal and regional variability of surface features, atmospheric processes linked to hydrospheric process through the transfer of matter via aerosols and gases, particle fluxes to the aquatic environment, global geochemical problems.

NASA CP-2109
N80-12718 67 pp
Avail NTIS 1979

Proceedings of Shuttle Environmental Effects Program Review

A. E. Potter

Measurements of Titan exhaust cloud effluents, mesoscale and microphysical acid rain models, proposed submesoscale model, regional air quality monitoring and rain collection systems, ecological impact of solid rocket motor exhaust effluents.

NASA CP-2110
N80-15649 124 pp
Avail NTIS 1980

Scientific Research With the Space Telescope: International Astronomical Union Colloquium No. 54

M. S. Longair, J. W. Warner

Investigations of small solar system objects, the physical characteristics of ionized gaseous nebulae, the central regions of active galaxies and quasars, problems of cosmology, the distribution and composition of interstellar matter.

NASA CP-2111
N80-22130 331 pp
Avail NTIS 1979

Preliminary Applications and Evaluation Results. Lixiscope: Proceedings of the Lixiscope Conference

The principle of the lixiscope and its potential uses in industry, clinical medicine, and astrophysics.

NASA CP-2112
N80-12384 89 pp
Avail NTIS 1978

HEAO Science Symposium

C. Dailey, W. Johnson

X-ray variability, extragalactic astronomy, x-ray ion line emission, optical identification and spectroscopy of x-ray sources, results from HEAO 2 imaging and nonimaging instruments.

NASA CP-2113
N80-14977 463 pp
Avail NTIS 1979

Validation Methods for Fault-Tolerant Avionics and Control Systems

The state of the art in fault tolerant computer validation.

NASA CP-2114
N80-12741 112 pp
Avail NTIS 1979

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Radio Interferometry: Techniques for Geodosy

Progress in the development and application of radio interferometry as a tool for geophysical research.

NASA CP-2115
N80-28798 472 pp
Avail NTIS 1980

Operational Applications of Satellite Snowcover Observations

A. Rango, R. Peterson

The history of remote sensing of snow cover, techniques for interpreting Landsat and NOAA satellite data, the status of future systems for continuing snow hydrology applications, the use of snow cover observations in streamflow forecasts by applications systems verification and transfer participants and selected foreign investigators, the benefits of using satellite snow cover data in runoff prediction.

NASA CP-2116
N80-25742 294 pp
Avail NTIS 1980

The 1979 Goddard Space Flight Center Battery Workshop

G. Halpert

Results of testing, analysis, and development of the sealed nickel cadmium cell system, metal hydrogen and lithium cell technology and applications.

NASA CP-2117
N80-20820 521 pp
Avail NTIS 1980

Large Space Systems Technology, 1979— Antenna and Space Platform Systems Conference

J. C. Ward, Jr.

Large antennas systems, large space platform systems.

NASA CP-2118
N80-19145 487 pp
Avail NTIS 1980

Assessment of Carbon Fiber Electrical Effects

The risks associated with the use of carbon fiber composites in civil aircraft, the need for protection of civil aircraft equipment from fire-released carbon fibers.

NASA CP-2119
N80-19193 278 pp
Avail NTIS 1980

Resource Management on the Flight Deck

G. E. Cooper, M. D. White, J. K. Lauber

Several approaches to the training and selection of aircrew, the psychology of the flight deck situation.

NASA CP-2120
N80-22283 247 pp
Avail NTIS 1980

Proceedings of the Aero-Optics Symposium on Electromagnetic Wave Propagation From Aircraft

Wind-tunnel and flight experiments concerning natural and induced turbulence around an airplane and the effects on propagation characteristics of an emitter mounted in the airplane.

NASA CP-2121
N80-25588 666 pp
Avail NTIS 1980

Cryogenic Technology

Part 1. Thermal structures, insulation systems, noises, seals, and materials.

NASA CP-2122
N82-20357 273 pp
Avail NTIS 1979

Part 2. Tunnel instrumentation and model/sting technology.

NASA CP-2122
N82-20358 159 pp
Avail NTIS 1979

Flight Mechanics/Estimation Theory Symposium

A. J. Fuchs

Methods of determining satellite orbit and attitude parameters.

NASA CP-2123
N80-28389 260 pp
Avail NTIS 1980

An Assessment of Ground-Based Techniques for Detecting Other Planetary Systems

D. C. Black, W. E. Brunk

The feasibility and limitations of ground-based techniques for detecting other planetary systems, the level of accuracy at which these limitations would occur, the extent to which they can be overcome by new technology and instrumentation.

Volume 1. An Overview—Workshop Conclusions

NASA CP-2124
N80-18997 48 pp
Avail NTIS 1980

124

An Assessment of Ground-Based Techniques for Detecting Other Planetary Systems

Volume 2. Position Papers

The capabilities of several astronomical interferometer system concepts, the effects of the Earth's atmosphere on astrometric precision.

NASA CP-2124
N80-25224 253 pp
Avail NTIS 1980

Thermal Energy Storage: Fourth Annual Review Meeting

The development of low cost thermal energy storage technologies in terms of near term oil savings, solar energy applications, and dispersed energy systems for energy conservation policies.

NASA CP-2125
N80-22788 650 pp
Avail NTIS 1980

General Aviation Propulsion

The general aviation turbine engine study program; the general aviation propeller technology program; the advanced rotary, diesel, and reciprocating engine programs.

NASA CP-2126
N80-22327 437 pp
Avail NTIS 1980

Proceedings of the 14th Aerospace Mechanisms Symposium

Aviation propulsion and crew safety; space vehicle guidance and control; spacecraft deployment and positioning; large space structures.

NASA CP-2127
N80-23495 327 pp
Avail NTIS 1980

Lightning Technology: Proceedings of a Technical Symposium

Phenomenology, measurement, detection, protection, interaction, and testing; lightning electromagnetics, protection of ground systems, simulated lightning testing.

NASA CP-2128
N80-21927 444 pp
Avail NTIS 1980

Proceedings of the Eleventh Annual Precise Time and Time Interval (PTTI) Application and Planning Meeting

S. C. Wardrip

Past accomplishments; new and useful applications, procedures, and techniques; and directions for research efforts. Meeting, November 1979.

NASA CP-2129
N80-29096 703 pp
Avail NTIS 1979

Validation Methods Research for Fault-Tolerant Avionics and Control Systems

J. W. Gault, K. S. Trivedi, J. B. Clary

A preliminary validation methodology for fault tolerant systems; a general framework for a validation methodology.

NASA CP-2130
N80-23008 105 pp
Avail NTIS 1980

Eighth NASTRAN User's Colloquium

The general application of finite element methodology and the specific application of NASTRAN to a wide variety of static and dynamic structural problems.

NASA CP-2131
N80-24648 242 pp
Avail NTIS 1980

Remote Sensing and Problems of the Hydrosphere. A Focus for Future Research

E. D. Goldberg

Problems of water quality which are addressable with remote sensors; the chemical, biological, geological, and physical dynamics of natural ecosystems.

NASA CP-2132
N80-23956 35 pp
Avail NTIS 1980

Rotordynamic Instability Problems in High-Performance Turbomachinery

Diagnostic and remedial methods; rotordynamic control by feedback method, use of elastometric elements, use of hydrodynamic journal bearings and supports.

NASA CP-2133
N80-29706 463 pp
Avail NTIS 1980

High Resolution Infrared Spectroscopy Techniques for Upper Atmospheric Measurements

D. G. Murcray, J. M. Alvarez

Infrared heterodyne techniques for detecting molecules predicted to be present but not yet detected in the upper atmosphere.

NASA CP-2134
N80-27866 109 pp
Avail NTIS 1980

Time-of-Day Corrections to Aircraft Noise Metrics

S. Clevenson, W. T. Shepherd

The historical and background aspects of time-of-day corrections.

NASA CP-2135
N80-28150 81 pp
Avail NTIS 1980

Review of Spectroscopic Data for Measurements of Stratospheric Species

A. Goldman, J. Hoell

A review of the current status of experimental and theoretical spectroscopic data on molecules of stratospheric interest, recommendations for additional research.

NASA CP-2136
N80-26125 34 pp
Avail NTIS 1980

Propulsion Controls, 1979

Multivariable engine control is examined to determine future needs and problem areas and to establish the appropriate roles of government, industries, and universities in addressing these problems. Symposium, May 1979.

NASA CP-2137
N81-12090 147 pp
Avail NTIS 1980

Heterodyne Systems and Technology

Active and passive systems, local oscillators, tunable diode lasers, astronomical systems.

Part 1
NASA CP-2138
N80-29652 266 pp
Avail NTIS 1980

Part 2
NASA CP-2138
N80-29672 321 pp
Avail NTIS 1980

Proceedings: Fourth Annual Workshop on Meteorological and Environmental Inputs to Aviation Systems

W. Frost, D. W. Camp

Winds and wind shear; turbulence; icing and frost; fog, visibility, and ceiling; and atmospheric electricity. Workshop, March 1980.

NASA CP-2139
N81-14555 287 pp
Avail NTIS 1980

Exploratory Meeting on Airborne Doppler Lidar Wind Velocity Measurements

G. H. Fichtel, J. W. Kaufman, W. W. Vaughan

The scientific interests and applications of the airborne Doppler lidar wind velocity measurement system to severe storms and local weather, atmospheric boundary layer, atmospheric dispersion, industrial aerodynamics.

NASA CP-2140
N80-26999 57 pp
Avail NTIS 1980

Solar Power Satellite Microwave Transmission and Reception

R. H. Dietz

Numerous analytical and experimental investigations related to SPS microwave power transmission and reception. Workshop, January 1980.

NASA CP-2141
N81-16533 271 pp
Avail NTIS 1980

Selected NASA Research in Composite Materials and Structures

Failure prediction techniques, laminate fatigue analysis, damage tolerance, electrical hazards of carbon fiber composites.

NASA CP-2142
N80-28436 237 pp
Avail NTIS 1980

IPAD: Integrated Programs for Aerospace-Vehicle Design

Critical technology issues for computer-aided design and manufacturing. Symposium, September 1980.

NASA CP-2143
N83-17115 400 pp
Avail NTIS 1980

Large Space Systems / Low-Thrust Propulsion Technology

Systems / mission analysis, LSS static and dynamic characterization, and propulsion systems characterization. Meeting, May 1980.

NASA CP-2144
N80-31449 347 pp
Avail NTIS 1980

NASA / MSFC FY80 Atmospheric Processes Research Review

R. E. Turner

Global weather, upper atmosphere, severe storms, and local weather.

NASA CP-2145
N80-28965 167 pp
Avail NTIS 1980

Aircraft Research and Technology for Future Fuels

The potential characteristics of future aviation turbine fuels and the property effects of these fuels on propulsion system components. Symposium, April 1980.

NASA CP-2146
N80-29300 229 pp
Avail NTIS 1980

Research in Nonlinear Structural and Solid Mechanics

H. G. McComb, Jr., A. K. Noor

Nonlinear analysis of building structures, numerical solution of nonlinear algebraic equations, and Newton's method are among topics discussed. Symposium, October 1980.

NASA CP-2147
N80-32756 287 pp
Avail NTIS 1980

Research in Nonlinear Structural and Solid Mechanics (Supplement)

H. G. McComb, Jr., A. K. Noor

NASA CP-2147
N82-11489 44 pp
Avail NTIS 1981

Western Regional Sensing Conference Proceedings, 1979

Diverse applications of Landsat data, operational goals, and exchange of problems and solutions. Conference, October 1979.

NASA CP-2148
N81-21440 192 pp
Avail NTIS 1980

Impact for the 80's

Aircraft propulsion; wind power commercialization; lubrication and bearings; Stirling and gas turbine engines; and electric and hybrid vehicles. Conference, May 1980.

NASA CP-2149
N81-12978 238 pp
Avail NTIS 1980

The 11th Space Simulation Conference

A. C. Bond

Subject areas include space and entry environments and the environmental testing of systems and complete spacecraft of present-day vintage. Conference, September 1980.

NASA CP-2150
N81-14138 435 pp
Avail NTIS 1980

Ninth NASTRAN Users' Colloquium

The general application of finite element methodology and the specific application of NASTRAN to a wide variety of static and dynamic structural problems.

NASA CP-2151
N80-33782 248 pp
Avail NTIS 1980

Fifth Annual Flight Mechanics/ Estimation Theory

J. Teles

Various aspects of astrodynamics are considered including orbit calculations and trajectory determination. Symposium, October 1980.

NASA CP-2152
N81-11070 464 pp
Avail NTIS 1980

Microwave Remote Sensing of Snowpack Properties

A. Rango

Remote sensing capabilities for providing reliable snow cover data and measurement of snow water equivalents. Conference, May 1980.

NASA CP-2153
N81-19511 272 pp
Avail NTIS 1980

Synchronous Energy Technology

Technology areas include photovoltaics, thermal management, energy storage, and power management. Symposium, April 1980.

NASA CP-2154
N80-33465 144 pp
Avail NTIS 1980

Field Study for Remote Sensing: An Instructor's Manual

W. H. Wake, G. A. Hull

The value of field work (surface truthing) in the verification of image identification from high altitude infrared and multispectral space sensor images. Workshop, March 1978.

NASA CP-2155
N81-32564 93 pp
Avail NTIS 1981

Life in the Universe

J. Billingham

The origins of life, life-supporting environments, the evolution of life in the galaxy, and the detectability of technological civilizations.

NASA CP-2156
N82-20884 465 pp
Avail GPO 1982

VAS Demonstration Sounding Workshop

D. L. Endres, L. W. Uccellini

Operational sounding, colocation concepts, correcting cloud errors, and the First GARP Global Experiment. Conference, July 1980.

NASA CP-2157
N81-19709 83 pp
Avail NTIS 1980

Aerospace Applications of Microprocessors

Microprocessor applications, current and future requirements, and associated technological advances. Workshop, November 1980.

NASA CP-2158
N81-11644 269 pp
Avail NTIS 1980

Spacecraft Transmitter Reliability

Users' experience with space transmitters, cathodes, power supplies and interfaces, specifications, and quality assurance. Workshop, September 1979.

NASA CP-2159
N81-16119 18 pp
Avail NTIS 1980

First Scientific Working Group Meeting of Airborne Doppler Lidar Wind Velocity Measurement Program

J. W. Kaufman

Flight test options for engineering verification of the NASA Marshall doppler lidar; flight test options for data gathering; and postflight data processing.

NASA CP-2161
N81-10637 135 pp
Avail NTIS 1980

Space Plasma Physics Active Experiments

W. T. Roberts

Design concepts, capabilities, and operations of instruments developed for Spacelab 1.

NASA CP-2165
N81-14944 239 pp
Avail NTIS 1980

Numerical Grid Generation Techniques

The state of the art in topology and flow geometry. Conference, October 1980.

NASA CP-2166
N81-14690 561 pp
Avail NTIS 1980

Validation Methods Research for Fault-Tolerant Avionics and Control Systems Sub-Working Group Meeting

K. S. Trivedi, J. B. Clary

A computer-aided reliability estimation procedure (CARE 3), developed to model the behavior of ultrareliable systems required by flight-critical avionics and control systems, is evaluated.

NASA CP-2167
N81-15702 30 pp
Avail NTIS 1980

Large Space Systems Technology, 1980

F. Kopriver, III

Technology pertinent to large antenna systems and related to large space systems, and activities that support both antenna and platform systems.

Volume 1. Systems Technology
NASA CP-2168
N81-19164 445 pp
Avail NTIS 1981

Volume 2. Base Technology
NASA CP-2168
N81-19196 188 pp
Avail NTIS 1981

Space Photovoltaic Research and Technology 1980

The application of silicon solar cells with respect to their importance in the exploration of space. Conference, October 1980.

NASA CP-2169
N81-17531 395 pp
Avail NTIS 1980

The 1980 Aircraft Safety and Operating Problems

J. W. Stickle

Terminal-area operations, avionics and human factors, and the atmospheric environment. Conference, November 1980.

Part 1
NASA CP-2170
N81-19035 380 pp
Avail NTIS 1981

Part 2
NASA CP-2170
N81-19056 390 pp
Avail NTIS 1981

The Universe at Ultraviolet Wavelengths

R. D. Chapman

The solar system, O-A stars, F-M stars, binary stars and highly evolved objects, and extragalactic objects. Symposium, May 1980.

NASA CP-2171
N81-25893 773 pp
Avail NTIS 1981

Advanced Aerodynamics and Active Controls

In-flight direct strike lightning research, tail configurations, winglets, and the drones for aerodynamic and structural testing program.

NASA CP-2172
N81-19001 180 pp
Avail NTIS 1981

Eastern Regional Remote Sensing Applications Conference

N. M. Short

The roles and activities of NASA and the National Conference of State Legislatures in fostering remote sensing technology utilization by the states and in promoting interstate communication and cooperation.

NASA CP-2173
N83-21419 240 pp
Avail NTIS 1981

NASA Metrology and Calibration, 1980

Review and assessment of NASA metrology and calibration activities, results of audits by the Office of Inspector General, and review of a proposed NASA equipment management system. Final report.

NASA CP-2174
N81-23432 153 pp
Avail NTIS 1981

Proceedings of the 12th Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting

S. C. Wardrip

Emphasis on military applications and avionics. Meeting, December 1980.

NASA CP-2175
N81-27467 871 pp
Avail NTIS 1981

Joint University Program for Air Transportation Research, 1980

Low-cost avionics concepts and hardware for general aviation aircraft are discussed.

NASA CP-2176
N83-18637 144 pp
Avail NTIS 1981

The 1980 Goddard Space Flight Center Battery Workshop

G. Halpert

Lithium primary cell technology and aerospace applications, with attention to statistical analysis of battery data and accelerated testing. Workshop, November 1980.

NASA CP-2177
N81-21493 426 pp
Avail NTIS 1981

Fundamental Heat Transfer Research for Gas Turbine Engines

D. E. Metzger

Trends in aeropropulsion research and technology, basic analyses, experiments, and hot technology as related to gas turbine engines. Workshop, October 1980.

NASA CP-2178
N81-26063 68 pp
Avail NTIS 1980

Float Zone Workshop

R. J. Naumann

A summary of the analytical float zone experiment system concept. Workshop, December 1980.

NASA CP-2179
N81-19144 175 pp
Avail NTIS 1980

Automated Decision Making and Problem Solving

E. Heer

Volume 1. Executive Summary

NASA CP-2180
N81-30889 55 pp
Avail NTIS 1981

Volume 2. Conference Presentations

NASA CP-2180
N81-29902 312 pp
Avail NTIS 1980

The 15th Aerospace Mechanisms Symposium

Aerospace propulsion, aerodynamic devices, crew safety, space vehicle control, and large space structures. Symposium, May 1981.

NASA CP-2181
N81-22388 433 pp
Avail NTIS 1981

Spacecraft Changing Technology, 1980

Geosynchronous plasma environment, spacecraft modeling and materials characterization, and satellite design and testing. Conference, November 1980.

NASA CP-2182
N82-14213 1005 pp
Avail NTIS 1981

High Reynolds Number Research, 1980

L. W. McKinney, D. D. Baals

Fluid dynamics, configuration aerodynamics, wind tunnel/flight correlation, space vehicles, and theoretical aerodynamics. Workshop, December 1980.

NASA CP-2183
N81-31130 315 pp
Avail NTIS 1981

Guidelines for Line-Oriented Flight Training

J. K. Lauber, H. C. Foushee

Designed as a handbook for LOFT users. Workshop, January 1981.

Volume 1

NASA CP-2184
N81-30101 46 pp
Avail NTIS 1981

Volume 2

NASA CP-2184
N82-13123 156 pp
Avail NTIS 1981

Wind Turbine Dynamics

R. W. Thresher

The adequacy of state-of-the-art analysis tools for designing the next generation of wind power systems and verifications of theory which might be lacking or inadequate. Workshop, February 1981.

NASA CP-2185
N82-23684 422 pp
Avail NTIS 1981

Capacitor Technologies, Applications and Reliability

Failure causes, accelerated testing, screening tests, and improvements in capacitor capabilities. Symposium, February 1981.

NASA CP-2186
N81-26372 158 pp
Avail NTIS 1981

Structural Dynamics and Control of Large Space Structures

E. B. Lightner

The basic research program assembled by NASA Langley to address the fundamental technology deficiencies identified in several studies on large space systems. Conference, October 1980.

NASA CP-2187
N81-26166 136 pp
Avail NTIS 1981

Chesapeake Bay Plume Study: Superflux 1980

J. W. Campbell, J. P. Thomas

The role of remote sensing in monitoring and assessing the effects of pollution of marine resources. Symposium, January 1981.

NASA CP-2188
N82-10661 504 pp
Avail NTIS 1981

Ozone Trend Detectability

J. W. Campbell

The predictability of climatological series, whether empirical models can be trusted, and how errors in the Dobson total ozone data affect trend detectability. Symposium, July 1977.

NASA CP-2189
N82-10624 108 pp
Avail NTIS 1981

Aircraft Engine Diagnostics

Engine durability, performance retention concepts, engine condition monitoring systems. Conference, May 1981.

NASA CP-2190
N81-31196 377 pp
Avail NTIS 1981

Variations of the Solar Constant

S. Sofia

Variations in data received from rocket-borne and balloon-borne instruments and indirect techniques to measure and monitor the solar constant. Workshop, November 1980.

NASA CP-2191
N82-17014 285 pp
Avail NTIS 1981

Proceedings: Fifth Annual Workshop on Meteorological and Environmental Inputs to Aviation Systems

D. W. Camp, W. Frost, P. D. Parsley

Aviation safety, meteorology, air traffic control, training, and aviation weather research and services.

NASA CP-2192
N82-21139 149 pp
Avail NTIS 1981

Oceanic Lidar

K. L. Carder

Lidar technology. Workshop, November 1980.

NASA CP-2194
N81-31801 45 pp
Avail NTIS 1981

Western Regional Remote Sensing Conference Proceedings, 1981

Diverse applications of LANDSAT data, problem solutions, operational goals, and the planned transition of the operational remote sensing system to NOAA's supervision. Conference, March-April 1981.

NASA CP-2195
N82-22546 263 pp
Avail NTIS 1981

130

Office of Space and Terrestrial Applications (OSTA) / Applications Data Service (ADS) Data Systems Standards

B. A. Walton

Current pilot methodologies and preliminary requirements for guidelines and standards for catalogues, directories, and dictionaries. Workshop, May 1981.

NASA CP-2196
N82-15095 270 pp
Avail NTIS 1981

Corse-81

S. M. Davis

The 1981 conference on remote sensing education.

NASA CP-2197
N83-17942 375 pp
Avail NTIS 1981

Second Eastern Regional Remote Sensing Applications Conference

M. L. Imhoff, R. G. Witt, D. Kugelmann

Agriculture and forestry, land cover analysis and planning, surface mining and energy, water quality and the coastal zone, and user development programs.

NASA CP-2198
N83-19141 398 pp
Avail NTIS 1981

Spacecraft Dynamics as Related to Laboratory Experiments in Space

G. H. Fichtl, B. N. Antar, F. G. Collins

The dynamics of drops, geophysical fluids, superfluid helium, two phase flow, combustion, and heat transfer. Workshop, May 1979.

NASA CP-2199
N82-12109 206 pp
Avail NTIS 1981

The Numerical Studies Program for the Atmospheric General Circulation Experiment (AGCE) for Spacelab Flights

W. W. Fowlis, M. H. Davis

Atmospheric circulation and physics, flow geometry, and earth atmosphere.

NASA CP-2200
N82-12715 65 pp
Avail NTIS 1981

Numerical Boundary Condition Procedures

Numerical procedures for treating inflow and outflow boundaries, far field boundaries, and multiblock grids. Symposium, October 1981.

NASA CP-2201
N81-33856 383 pp
Avail NTIS 1981

Multigrid Methods

Developments in numerical solution of certain types of partial differential equations by rapidly converging sequences of operations on very fine to very coarse supporting grids. Symposium, October 1981.

NASA CP-2202
N81-33879 304 pp
Avail NTIS 1981

Technical Communication

J. C. Mathes, T. E. Pinelli

A history and definition of technical writing, the case method, teaching technical writing, oral communication and rhetorical theory, and new approaches in and practical applications of technical writing. Conference, March 1981.

Part 1
NASA CP-2203
N82-14960 307 pp
Avail NTIS 1981

Part 2
NASA CP-2203
N82-15986 316 pp
Avail NTIS 1981

NASA / MSFC FY81 Atmospheric Processes Research Review

R. E. Turner

Ongoing research programs and future plans for satellite investigations into global weather, upper atmospheric phenomena, and severe storms and local weather.

NASA CP-2204
N82-16660 161 pp
Avail NTIS 1981

Sixth Annual Flight Mechanics / Estimation Theory Symposium

E. Lefferts

Methods of orbital position estimation. Conference, October 1981.

NASA CP-2205
N82-10064 287 pp
Avail NTIS 1981

Ruggedized Minicomputer Hardware and Software Topics, 1981

Minicomputers and the development and/or certification of commercial or military airplanes, generalized software error detection techniques, and real-time software development tools. Conference, February 1981.

NASA CP-2206
N82-14829 214 pp
Avail NTIS 1981

Optical Information Processing for Aerospace Applications

Current research in optical processing and its role in future aerospace systems. Conference, August 1981.

NASA CP-2207
N82-15894 347 pp
Avail NTIS 1981

Electric Flight Systems

N. J. Groom, R. V. Hood

Materials illustrating presentations on the development of electric flight systems for the all-electric aircraft and for spacecraft.

NASA CP-2209
N82-19134 269 pp
Avail NTIS 1982

Advanced Power Transmission Technology

G. K. Fischer

Technology overviews, advanced transmission concepts, rolling-element bearing technology, and traction drive technology.

NASA CP-2210
N83-20119 341 pp
Avail NTIS 1983

The Third International Cloud Condensation Nuclei Workshop

W. C. Kocmond, C. R. Rogers, S. W. Rea

Twenty-five instruments were tested; aerosols were supplied to the instruments by an on-line generation system. Final report.

NASA CP-2212
N82-15383 287 pp
Avail NTIS 1981

Space Power Subsystem Automation Technology

J. R. Graves

Technology issues involved in power subsystem automation and the reasonable objectives to be sought in such a program.

NASA CP-2213
N82-21254 219 pp
Avail NTIS 1982

Space Laser Power Transmission System Studies

M. D. Williams, E. J. Conway

Power transmission by laser technique and space-to-Earth and space-to-space configurations. Symposium, October 1981.

NASA CP-2214
N82-18578 210 pp
Avail NTIS 1982

Large Space Systems Technology, 1981.

W. J. Boyer

Program status, structures, materials, and analyses, and control of large space systems. Conference, November 1981.

Part 1
NASA CP-2215
N82-18275 430 pp
Avail NTIS 1982

Part 2
NASA CP-2215
N82-19257 479 pp
Avail NTIS 1982

Computational Aspects of Heat Transfer In Structures

H. M. Adelman

Analysis methods, computer programs, thermal analysis of large space structures and high speed vehicles, and the impact of computer systems. Symposium, November 1981.

NASA CP-2216
N82-23473 554 pp
Avail NTIS 1982

The 1981 Goddard Space Flight Center Battery Workshop

G. Halpert

Results of testing, analysis, and development of lithium, nickel-cadmium, and nickel-hydrogen batteries. Workshop, November 1981.

NASA CP-2217
N82-20402 544 pp
Avail NTIS 1982

Laminar Flow Control

D. V. Maddalon

Laminar flow airfoil design and construction, boundary layer control characteristics, and construction materials and methods. Conference, September 1981.

NASA CP-2218
N82-20149 135 pp
Avail NTIS 1982

Helicopter Handling Qualities

The status and problems in the development and specification of helicopter handling-qualities criteria.

NASA CP-2219
N82-23208 243 pp
Avail NTIS 1982

Proceedings of the Thirteenth Annual Precise Time and Time Interval (PTTI) Applications and Planning Meeting

S. C. Wardrip

Important future trends and state of the art and relevant past accomplishments. Meeting, December 1981.

NASA CP-2220
N82-20494 864 pp
Avail NTIS 1982

The 16th Aerospace Mechanisms Symposium

Technology survey of devices designed for use in space operations; includes orbiter specialized hardware, payload deployment, and positioning. Conference, May 1982.

NASA CP-2221
N82-23344 343 pp
Avail NTIS 1982

Production of Reliable Flight Crucial Software

J. R. Dunham, J. C. Knight

The state of the art in the production of crucial software for flight control applications and thirteen software development projects are presented.

NASA CP-2222
N82-24845 27 pp
Avail NTIS 1982

Vibrational-Rotational Spectroscopy for Planetary Atmospheres

M. J. Mumma, K. Fox, J. Hornstein

Volume 1
NASA CP-2223
N82-25043 416 pp
Avail NTIS 1982

Volume 2
NASA CP-2223
N82-26134 242 pp
Avail NTIS 1982

Joint University Program for Air Transportation Research, 1981

Navigation, guidance, control and display concepts, and hardware, with special emphasis on applications to general aviation aircraft. Conference, December 1981.

NASA CP-2224
N82-26199 235 pp
Avail NTIS 1982

Wind-Tunnel / Flight Correlation, 1981

L. W. McKinney, D. D. Baals

Wind-tunnel/flight correlation activities are reviewed to assure maximum effectiveness of the early experimental programs of the National Transonic Facility. Workshop, November 1981.

NASA CP-2225
N82-25196 224 pp
Avail NTIS 1982

Float Zone Workshop

E. L. Kern, E. K. Cothran

Space-based float zone crystal growth and melt behavior. Workshop, September 1981.

NASA CP-2226
N82-26330 205 pp
Avail NTIS 1981

Meteorological Satellites: Past, Present, and Future

Meteorological satellite design, space platforms and their meteorological applications, and user needs.

NASA CP-2227
N82-24781 61 pp
Avail NTIS 1982

Eleventh International Laser Radar Conference

Laser radar measurements of properties from the Earth's ocean surface to the mesosphere. Conference, June 1982.

NASA CP-2228
N82-27706 267 pp
Avail NTIS 1982

Twelfth Space Simulation Conference

R. T. Hollingsworth

Space Shuttle results, thermal simulation and protection, contamination, remote sensing, and dynamics testing and assessment. Conference, May 1982.

NASA CP-2229
N82-25291 339 pp
Avail NTIS 1982

Large Horizontal-Axis Wind Turbines

R. W. Thresher

Current and advanced large wind turbine systems, rotor blade design and manufacture, electric utility activities, and wind resources assessments for siting.

NASA CP-2230
N83-19231 823 pp
Avail NTIS 1982

Controlled Ecological Life Support System: Use of Higher Plants

T. W. Tibbits, D. K. Alford

Criteria for plant selection identified from categories including food production, nutrition, and water recycling. Workshop, November 1979.

NASA CP-2231
N82-24834 86 pp
Avail NTIS 1982

Controlled Ecological Life Support System: Research and Development Guidelines

R. M. Mason, J. L. Carden

Research recommendations concern nutrition and food processing, food production, waste processing, systems engineering and modelling, and ecology-systems safety.

NASA CP-2232
N82-24835 99 pp
Avail NTIS 1982

Controlled Ecological Life Support System: Biological Problems

B. Moore, III, R. D. Macelroy

General processes and controls associated with two distinct experimental paradigms. Specific areas include research related to food production and waste management.

NASA CP-2233
N82-24836 42 pp
Avail NTIS 1982

Applying Modeling Results in Designing a Global Tropospheric Experiment

Field experiments and advanced modeling studies provide a strategy for a program of global tropospheric experiments. Working Group Meeting, July 1981.

NASA CP-2235
N82-29796 95 pp
Avail NTIS 1982

Computer Science Research at Langley

S. J. Voigt

Workshop, November 1981.

NASA CP-2236
N82-26996 68 pp
Avail NTIS 1982

Tropospheric Passive Remote Sensing

L. S. Keafer, Jr.

Airborne/spaceborne passive remote sensing systems for tropospheric air quality research. Workshop, July 1981.

NASA CP-2237
N82-26637 95 pp
Avail NTIS 1982

Advances in Ultraviolet Astronomy: Four Years of IUE Research

Y. Kondo, J. M. Mead, R. D. Chapman

Results of ultraviolet observations of cool, hot, binary, and variable stars; galaxies; and the solar system utilizing the International Ultraviolet Explorer. Symposium, March–April 1982.

NASA CP-2238
N82-31163 653 pp
Avail NTIS 1982

Earth Radiation Science Seminars

J. B. Hall, Jr.

Earth radiation budget experiments, instrumentation, computational methods, and the effect of increased CO_2 on climate. Seminars, June 1980 to October 1981.

NASA CP-2239
N82-33320 175 pp
Avail NTIS 1982

Atmospheric Effects and Potential Climatic Impact of the 1980 Eruptions of Mount St. Helens

A. Deepak

Remote sensing measurements; transport and dispersion of volcanic effluents; chemistry of volcanic effluents; and weather and potential climate impact. Symposium, November 1980.

NASA CP-2240
N83-11534 296 pp
Avail NTIS 1982

Airport / Community Noise

D. G. Stephens

Airport noise and community planning for noise compatibility. Workshop, February 1982.

NASA CP-2241
N82-31070 40 pp
Avail NTIS 1982

Flight Effects of Fan Noise

D. Chestnutt

Workshop, January 1982.

NASA CP-2242
N83-10883 128 pp
Avail NTIS 1982

Flow Visualization and Laser Velocimetry for Wind Tunnels

W. W. Hunter, Jr., J. T. Fougbner, Jr.

Workshop, March 1982.

NASA CP-2243
N82-32663 354 pp
Avail NTIS 1982

The Space Telescope Observatory

D. N. B. Hall

The scientific capabilities and potential of the Space Telescope. IAU 18th General Assembly, August 1982.

NASA CP-2244
N82-33296 138 pp
Avail NTIS 1982

Research in Structural and Solid Mechanics, 1982

J. M. Housner, A. K. Noor

Solution procedures and the physical investigation of structural responses.

NASA CP-2245
N82-33739 427 pp
Avail NTIS 1982

Human Factors Considerations in System Design

C. M. Mitchell, P. M. Vanbalen, K. L. Moe

Human factors aspects of control room design, human computer dialogue, and interaction in real time environments.

NASA CP-2246
N83-18238 381 pp
Avail NTIS 1983

Space Gerontology

J. Miquel, A. C. Economos

The effects of space flight on the older person, and the parallels between the physiological responses to weightlessness and the aging process.

NASA CP-2248
N83-16018 125 pp
Avail NTIS 1982

Tenth NASTRAN User's Colloquium

The development of a general-purpose finite element computer code for structural analysis is presented. Colloquium, May 1982.

NASA CP-2249
N83-12432 273 pp
Avail NTIS 1982

Rotordynamic Instability Problems in High-Performance Turbomachinery

Mechanical instability mechanisms, seal forces and working fluid forces in turbomachinery, and control of rotor instability.

NASA CP-2250
N83-13629 460 pp
Avail NTIS 1982

Advanced Materials Technology

C. P. Blankenship, L. A. Teichman

Composites, polymer science, metallic materials, and materials processing are among topics presented.

NASA CP-2251
N83-12147 438 pp
Avail NTIS 1982

VISSR Atmospheric Sounder (VAS) Research Review

J. R. Greaves

NASA CP-2253
N83-24028 54 pp
Avail NTIS 1983

NASA Administrative Data Base Management Systems

Issues concerning the procurement and operation of management systems are discussed.

NASA CP-2254
N83-18559 285 pp
Avail NTIS 1983

Advanced Automation for Space Missions

R. A. Freitas, Jr., W. P. Gilbreath

The feasibility of using machine intelligence in future space missions was studied. Final report.

NASA CP-2255
N83-15348 392 pp
Avail NTIS 1982

Space Photovoltaic Research and Technology, 1982

Space solar cell research and development.

NASA CP-2256
N83-15806 263 pp
Avail NTIS 1982

The Conception, Growth, Accomplishments and Future of Meteorological Satellites

W. W. Vaughan

Historical reviews and assessments of the current and projected role of meteorological satellites. The Tiros, Tiros N, and Nimbus series satellites are discussed.

NASA CP-2257
N83-14825 105 pp
Avail NTIS 1982

Modeling, Analysis, and Optimization Issues for Large Space Structures

L. D. Pinson, A. K. Amos, V. B. Venkayya

Structure-control interaction, structural and structural dynamics modeling, thermal analysis, testing, and design.

NASA CP-2258
N83-18819 222 pp
Avail NTIS 1983

NASA/MSFC FY-82 Atmospheric Processes Research Review

R. E. Turner

Upper atmosphere, global weather, and severe storms and local weather.

NASA CP-2259
N83-19391 243 pp
Avail NTIS 1982

Cryogenic Wind Tunnel Models. Design and Fabrication

C. P. Young Jr., B. B. Gloss

NASA CP-2262
N83-18748 254 pp
Avail NTIS 1983

Tire Modeling

J. A. Tanner

Solution techniques for tire contact problems, experimental data, tire thermal studies, and current design practices.

NASA CP-2264
N83-21391 245 pp
Avail NTIS 1983

Structural Dynamics and Control of Large Space Structures, 1982

M. L. Brumfield

Active damping and control of flexible beams, active stabilization of flexible antenna feed towers, and spacecraft docking are among the topics discussed.

NASA CP-2266
N83-22256 261 pp
Avail NTIS 1983

Aviation Gasolines and Future Alternatives

D. J. Patterson

General aviation industry needs and directions, fuel supply/demand issues, and general aviation technology prospects.

NASA CP-2267
N83-22442 164 pp
Avail NTIS 1983

Summary Proceedings of a Wind Shear Workshop

J. H. Enders, W. W. Melvin, W. Frost, et al.

The microburst wind shear phenomenon, the optimum flight procedure for use during an unexpected wind shear encounter, and evaluation of the low-level wind shear alert system.

NASA CP-2270
N83-25265 20 pp
Avail NTIS 1983

The 17th Aerospace Mechanisms Symposium

Space lubrication, aerodynamic devices, spacecraft/Shuttle latches, deployment, positioning, and pointing.

NASA CP-2273
N83-24881 390 pp
Avail NTIS 1983

The 1st Symposium on Chemical Evolution and the Origin and Evolution of Life

D. L. Devincenzi, L. G. Pleasant

Extraterrestrial chemistry, primitive earth, information transfer, solar system exploration, planetary protection, geological record, and early biological evolution.

NASA CP-2276
N83-24556 119 pp
Avail NTIS 1982

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This index is based roughly on a system of categories designed to fit the NASA information system. The ten broad headings used in this index are as follows.

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SP-225
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SP-439
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SP-3016
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SP-3086
SP-4902
SP-7003
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SP-8010
SP-8011
SP-8020
SP-8038
SP-8023
SP-8069
SP-8085
SP-8091
SP-8103
SP-8122
RP-1007

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RP-1068
RP-1093
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CP-2031
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SP-199
SP-243
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